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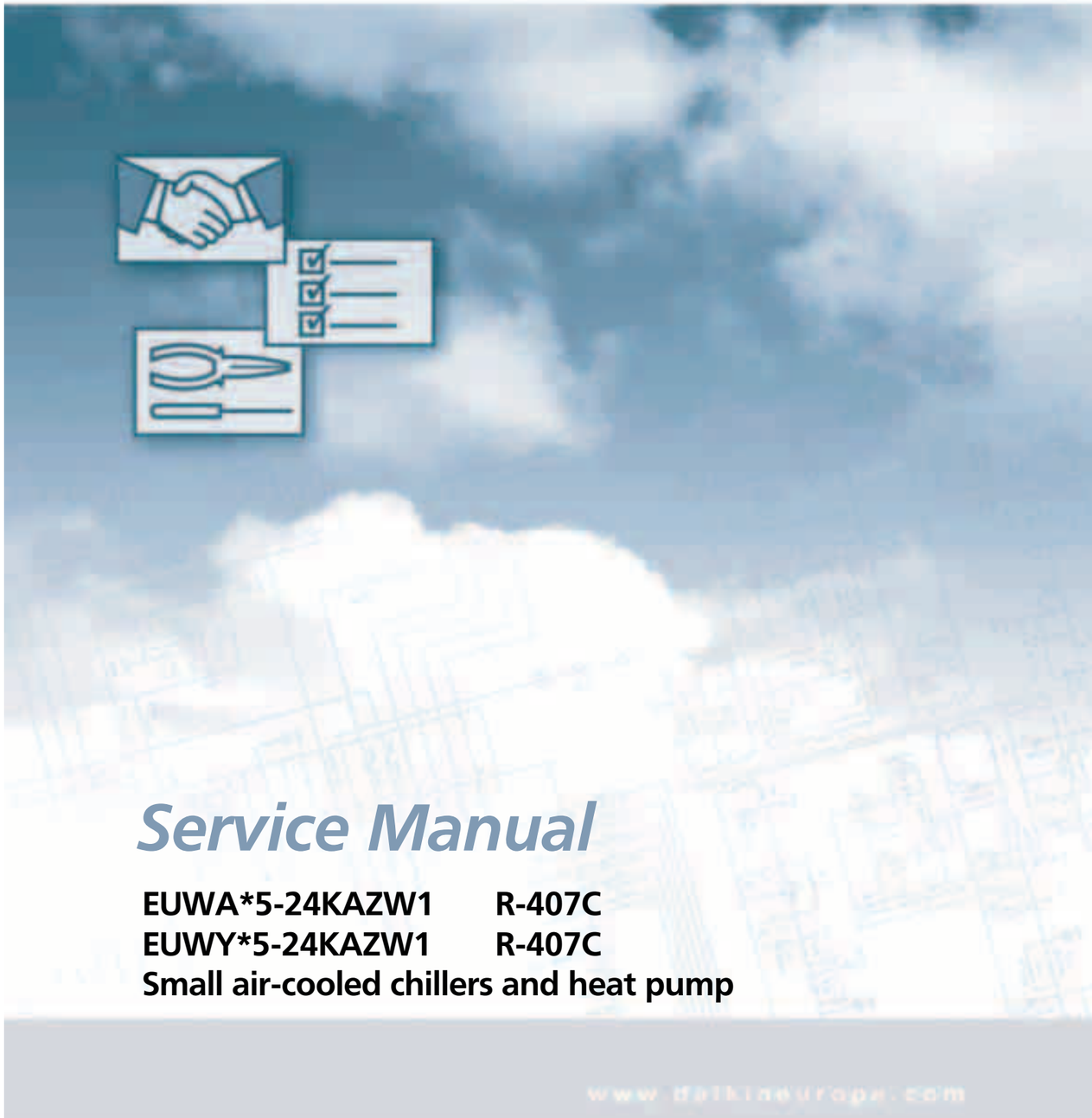

Service Manual

EUWA*5-24KAZW1 R-407C
EUWY*5-24KAZW1 R-407C
Small air-cooled chillers and heat pump

www.daikineurope.com

Service Manual / Small air-cooled chillers and heat pump ESiE04-03

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ESiE04-03

Service Manual

EUWA*5-24KAZW1 R-407C
EUWY*5-24KAZW1 R-407C
Small air-cooled chillers and heat pump

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1 Introduction

1.1 About This Manual

Target group

This service manual is intended for and should only be used by qualified engineers.

Purpose of this manual

This service manual contains all the information you need to carry out the necessary repair and maintenance tasks for the EUWA*5-24KAZW1 and EUWY*5-24KAZW1.

EUWA*5-24KAZW1

The Daikin EUWA*5-24KAZW1 air-cooled water chillers:

- Are designed for outdoor installation.
- Are used for cooling applications.
- Are available in seven standard sizes with nominal cooling capacities ranging from 11.3 kW to 55.3 kW.
- have three types of units:
  EUWAN5-24KAZW1 = without hydraulic module, naked model
  EUWAP5-24KAZW1 = with hydraulic module: pump and expansion vessel
  EUWAB5-24KAZW1 = with hydraulic module: buffer tank, pump and expansion vessel.

EUWY*5-24KAZW1

The Daikin EUWY*5-24KAZW1 heat pump water chillers:

- Are designed for outdoor installation.
- Are used for cooling and heating applications.
- Are available in seven standard sizes with nominal cooling capacities ranging from 9.1 kW to 50 kW and heating from 11.9 kW to 54 kW.
- have three types of units:
  EUWYN5-24KAZW1 = without hydraulic module, naked model
  EUWYP5-24KAZW1 = with hydraulic module: pump and expansion vessel
  EUWYB5-24KAZW1 = with hydraulic module: buffer tank, pump and expansion vessel.

Before starting up the unit

Before starting up the unit for the first time, make sure it has been properly installed. See "Pre-Test Run Checks" on page 4–3.

Part 1
System Outline

Introduction

This part contains an outline of all the relevant elements in the EUWA*5-24KAZW1 and EUWY*5-24KAZW1 installation.

What is in this part?

This part contains the following chapters:

Chapter	See page
1–General Outline	1–3
2–Piping Layout	1–63
3–Wiring Layout	1–71

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1 General Outline

1.1 What Is in This Chapter?

Introduction

This chapter contains the following information:

- Technical specifications
- Electrical specifications
- Installation outline of a typical installation
- Outlook drawings: Outlook, dimensions, installation and service space.

Overview

This chapter contains the following topics:

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1.2–Technical Specifications: EUWA*5-8KAZW1	1–5
1.3–Technical Specifications: EUWA*10-12KAZW1	1–8
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1.2 Technical Specifications: EUWA*5-8KAZW1

Technical specifications

The table below contains the technical specifications.

Model	EUWAN5KAZW1	EUWAP5KAZW1	EUWAB5KAZW1	EUWAN8KAZW1	EUWAP8KAZW1	EUWAB8KAZW1
Nominal cooling capacity	11.3 kW			17.9 kW		
Nominal input	4.52 kW	4.64 kW		7.38 kW	7.39 kW	
Capacity steps	0-100%			0-100%		
Compressor						
Type	Hermetically sealed scroll			Hermetically sealed scroll		
Speed	2900 rpm			2900 rpm		
Crankcase heater	33 W			50 W		
No. x model (W1)	1 x JT140BF-YE			1 x JT212DA-YE		
Evaporator						
Type	Brased plate-heat exchanger			Brased plate-heat exchanger		
No. x model	1 x AC50-24HX			1 x AC50-34HX		
Min.water volume in the system (1)	54 l			85 l		
Water flow rate	Min.: 16 l/min Max.: 65 l/min			Min.: 26 l/min Max.: 102 l/min		
Nominal water flow	32 l/min			51 l/min		
Nom. water pressure drop	24 kPa			38 kPa		
Insulation material	Climaflex					
Condenser						
Type	Cross fin coil Hi-X tubes and PE coated waffle louvre fins					
Rows x stages x fin pitch	2 x 40 x 2.0 mm					
Face area	1.570 m²					
Nominal air flow	160 m³/min			170 m³/min		
Discharge	Vertical					
Fan type	Direct drive					
No. of fans	2					
No. of motors x output	2 x 140 kW			1 x 190 kW and 1 x 230 kW		
Piping connections						
Evap. water in/outlet	FBSP 1-1/4”			FBSP 1-1/4”		
Refrigerant circuit						
Refrigerant type	R-407C					
Refrigerant charge	3.9 kg			4.6 kg		
Refrigerant control	Thermostatic expansion valve					
Oil type	Idemitsu FVC 68D					
Oil charge volume	1.5 l			2.7 l		

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Model	EUWAN5KAZW1	EUWAP5KAZW1	EUWAB5KAZW1	EUWAN8KAZW1	EUWAP8KAZW1	EUWAB8KAZW1
No. of circuits	1					
Pump						
No. x type	—	1 x Horizontal multi-stage end-suction		—	1 x Horizontal multi-stage end-suction	
Model	—	CH4-30		CH4-30		
Nominal static height pump	—	238 kPa		216 kPa		
Nominal static height unit	—	205 kPa		154 kPa		
Hydraulic components						
Buffer tank	—		55 l	—		55 l
Unit water volume	2 l	3 l	59 l	3 l	3 l	59 l
Expansion vessel	—	12 l		—	12 l	
Pre-pressure expansion vessel	1.5 bar			1.5 bar		
Safety valve	—	3 bar		—	3 bar	
Dimensions (h x w x d)	1230 x 1290 x 734 mm			1230 x 1290 x 734 mm		
Weight						
Machine weight	150 kg	168 kg	180 kg	215 kg	229 kg	241 kg
Operation weight	152 kg	171 kg	239 kg	218 kg	232 kg	300 kg
Casing						
Colour	Ivory white / Munsell code 5Y7.5/1 / ± RAL 7044					
Material	Polyester coated galvanised steel plate					
Sound power level (2)	67 dBA			76 dBA		
Safety devices	■ Low-pressure switch ■ High-pressure switch ■ Pump motor overcurrent ■ Discharge temperature control ■ Outlet water temperature protection ■ Compressor motor overcurrent relay ■ Fan thermal protector ■ Anti-recycling and guard timer ■ Digital display controller with electronic temperature control ■ Reverse phase protector ■ Flow switch.					

(1): The table below contains the minimum water volume settings.

Setting	EUWA*5-8KAZW1
The minimum water volume for standard thermostat difference setting	3 K
For reduced setting multiply this water volume by	3/new setting
Minimum allowable setting	0.1 K

(2): The sound power level is an absolute value that does not depend on the surroundings or the distance. It cannot be measured in the field (ISO 9614).

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers a leaving evaporator water temperature from 5°C (-5°C/-10°C for ZH/ZL option) to 20°C (pull down condition to 25°C).

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1.3 Technical Specifications: EUWA*10-12KAZW1

Technical specifications

The table below contains the technical specifications.

Model	EUWAN10KAZW1	EUWAP10KAZW1	EUWAB10KAZW1	EUWAN12KAZW1	EUWAP12KAZW1	EUWAB12KAZW1
Nominal cooling capacity	22.5 kW			26.5 kW		
Nominal input	8.79 kW	8.74 kW		11.5 kW		
Capacity steps	0-100%					
Compressor						
Type	Hermetically sealed scroll					
Speed	2900 rpm					
Crankcase heater	50 W					
No. x model (W1)	1 x JT265DA-YE			1 x JT335DA-YE		
Evaporator						
Type	Brased plate-heat exchanger					
No. x model	1 x AC50-40HX			1 x AC50-50HX		
Min.water volume in the system (1)	108 l			126 l		
Water flow rate	Min.: 32 l/min Max.: 129 l/min			Min.: 38 l/min Max.: 152 l/min		
Nominal water flow	64 l/min			76 l/min		
Nom. water pressure drop	43 kPa			37 kPa		
Insulation material	Climaflex					
Condenser						
Type	Cross fin coil Hi-X tubes and PE coated waffle louvre fins					
Rows x stages x fin pitch	2 x 50 x 2.0 mm					
Face area	1.970 m²					
Nominal air flow	170 m³/min					
Discharge	Vertical					
Fan type	Direct drive					
No. of fans	2					
No. of motors x output	1 x 190 kW and 1 x 230 kW			1 x 190 kW and 1 x 230 kW		
Piping connections						
Evap. water in/outlet	FBSP 1-1/4”					
Refrigerant circuit						
Refrigerant type	R-407C					
Refrigerant charge	4.6 kg			6.0 kg		
Refrigerant control	Thermostatic expansion valve					

Model	EUWAN10KAZW1	EUWAP10KAZW1	EUWAB10KAZW1	EUWAN12KAZW1	EUWAP12KAZW1	EUWAB12KAZW1
Oil type	Idemitsu FVC 68D					
Oil charge volume	2.7 l					
No. of circuits	1					
Pump						
No. x type	—	1 x Horizontal multi-stage end-suction		—	1 x Horizontal multi-stage end-suction	
Model	—	CH4-30		—	CH4-30	
Nominal static height pump	—	199 kPa		—	182 kPa	
Nominal static height unit	—	123 kPa		—	105 kPa	
Hydraulic components						
Buffer tank	—		55 l	—		55 l
Unit water volume	3 l	3 l	59 l	3 l	4 l	60 l
Expansion vessel	—	12 l		—	12 l	
Pre-pressure expansion vessel	1.5 bar			1.5 bar		
Safety valve	—	3 bar		—	3 bar	
Dimensions (h x w x d)	1450 x 1290 x 734 mm					
Weight						
Machine weight	245 kg	259 kg	271 kg	248 kg	262 kg	274 kg
Operation weight	248 kg	262 kg	330 kg	251 kg	265 kg	335 kg
Casing						
Colour	Ivory white / Munsell code 5Y7.5/1 / ± RAL 7044					
Material	Polyester coated galvanised steel plate					
Sound power level (2)	78 dBA					
Safety devices	■ Low-pressure switch ■ High-pressure switch ■ Pump motor overcurrent ■ Discharge temperature control ■ Outlet water temperature protection ■ Compressor motor overcurrent relay ■ Fan thermal protector ■ Anti-recycling and guard timer ■ Digital display controller with electronic temperature control ■ Reverse phase protector ■ Flow switch.					

(1): The table below contains the minimum water volume settings.

Setting	EUWA*10-12KAZW1
The minimum water volume for standard thermostat difference setting	3 K
For reduced setting multiply this water volume by	3/new setting
Minimum allowable setting	0.1 K

1

(2): The sound power level is an absolute value that does not depend on the surroundings or the distance. It cannot be measured in the field (ISO 9614).

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers a leaving evaporator water temperature from 5°C (-5°C/-10°C for ZH/ZL option) to 20°C (pull down condition to 25°C).

1.4 Technical Specifications: EUWA*16-20KAZW1

Technical specifications

The table below contains the technical specifications.

Model	EUWAN16KAZW1	EUWAP16KAZW1	EUWAB16KAZW1	EUWAN20KAZW1	EUWAP20KAZW1	EUWAB20KAZW1
Nominal cooling capacity	37.0 kW			46.6 kW		
Nominal input	15.2 kW	15.0 kW		18.1 kW	17.9 kW	
Capacity steps	0%-50%-100%					
Compressor						
Type	Hermetically sealed scroll					
Speed	2900 rpm					
Crankcase heater	50 W					
No. x model (W1)	2 x JT212DA-YE			2 x JT265DA-YE		
Evaporator						
Type	Brased plate-heat exchanger					
No. x model	1 x AC130-38DQ			1 x AC130-50DQ		
Min.water volume in the system (1)	88 l			111 l		
Water flow rate	Min.: 53 l/min Max.: 212 l/min			Min.: 67 l/min Max.: 267 l/min		
Nominal water flow	106 l/min			134 l/min		
Nom. water pressure drop	22 kPa					
Insulation material	Climaflex					
Condenser						
Type	Cross fin coil Hi-X tubes and PE coated waffle louvre fins					
Rows x stages x fin pitch	2 x 40 x 2 mm			2 x 50 x 2 mm		
Face area	2 x 1.570 m²			2 x 1.970 m²		
Nominal air flow	2 x 170 m³/min					
Discharge	Vertical					
Fan type	Direct drive					
No. of fans	4					
No. of motors x output	2 x 190 kW + 2 x 230 kW					
Piping connections						
Evap. water in/outlet	FBSP 2”					
Refrigerant circuit						
Refrigerant type	R-407C					
Refrigerant charge	2 x 4.6 kg			—	2 x 5.9 kg	—
Refrigerant control	Thermostatic expansion valve					
Oil type	Idemitsu FVC 68D					

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Model	EUWAN16KAZW1	EUWAP16KAZW1	EUWAB16KAZW1	EUWAN20KAZW1	EUWAP20KAZW1	EUWAB20KAZW1
Pump						
No. x type	—	1 x Horizontal multi-stage end-suction		—	1 x Horizontal multi-stage end-suction	
Model	—	CH8-30		—	CH8-30	
Nominal static height pump	—	243 kPa		—	210 kPa	
Nominal static height unit	—	187 kPa		—	137 kPa	
Hydraulic components						
Buffer tank	—		55 l	—		55 l
Unit water volume	6 l	9 l	65 l	6 l	10 l	66 l
Expansion vessel	—	12 l		—	12 l	
Pre-pressure expansion vessel	1.5 bar					
Safety valve	—	3 bar		—	3 bar	
Dimensions (h x w x d)	1321 x 2580 x 734 mm			1541 x 2580 x 734 mm		
Weight						
Machine weight	430 kg	448 kg	460 kg	490 kg	508 kg	520 kg
Operation weight	436 kg	457 kg	525 kg	496 kg	518 kg	586 kg
Casing						
Colour	Ivory white / Munsell code 5Y7.5/1 / ± RAL 7044					
Material	Polyester coated galvanised steel plate					
Sound power level (2)	79 dBA			81 dBA		
Safety devices	■ Low-pressure switch ■ High-pressure switch ■ Pump motor overcurrent ■ Discharge temperature protection ■ Outlet water temperature protection ■ Compressor motor overcurrent relay ■ Fan thermal protector ■ Anti-recycling and guard timer ■ Digital display controller with electronic temperature control ■ Reverse phase protector ■ Flow switch.					

(1): The table below contains the minimum water volume settings.

Setting	EUWA*16-20KAZW1
The minimum water volume for standard thermostat difference setting	3 K
For reduced setting multiply this water volume by	3/new setting
Minimum allowable setting	0.1 K

(2): The sound power level is an absolute value that does not depend on the surroundings or the distance. It cannot be measured in the field (ISO 9614).

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers a leaving evaporator water temperature from 5°C (-5°C/-10°C for ZH/ZL option) to 20°C (pull down condition to 25°C).

1

1.5 Technical Specifications: EUWA*24KAZW1

Technical specifications

The table below contains the technical specifications.

Model	EUWAN24KAZW1	EUWAP24KAZW1	EUWAB24KAZW1
Nominal cooling capacity	55.3 kW		
Nominal input	24.0 kW	24.0 kW	
Capacity steps	0%-50%-100%		
Compressor			
Type	Hermetically sealed scroll		
Speed	2900 rpm		
Crankcase heater	50 W		
No. x model (W1)	2 x JT335DA-YE		
Evaporator			
Type	Brased plate-heat exchanger		
No. x model	1 x AC130-58DQ		
Min.water volume in the system (1)	132 l		
Water flow rate	Min.: 79 l/min Max.: 317 l/min		
Nominal water flow	158 l/min		
Nom. water pressure drop	22 kPa		
Insulation material	Climaflex		
Condenser			
Type	Cross fin coil Hi-X tubes and PE coated waffle louvre fins		
Rows x stages x fin pitch	2 x 50 x 2 mm		
Face area	2 x 1.970 m²		
Nominal air flow	2 x 170 m³/min		
Discharge	Vertical		
Fan type	Direct drive		
No. of fans	4		
No. of motors x output	2 x 190 kW + 2 x 230 kW		
Piping connections			
Evap. water in/outlet	FBSP 2”		
Refrigerant circuit			
Refrigerant type	R-407C		
Refrigerant charge	2 x 6.0 kg		
Refrigerant control	Thermostatic expansion valve		
Oil type	Idemitsu FVC 68D		

Model	EUWAN24KAZW1	EUWAP24KAZW1	EUWAB24KAZW1
Pump			
No. x type	—	1 x Horizontal multi-stage end-suction	
Model	—	CH8-40	
Nominal static height pump	—	191 kPa	
Nominal static height unit	—	100 kPa	
Hydraulic components			
Buffer tank	—		55 l
Unit water volume	7 l	10 l	66 l
Expansion vessel	—	12 l	
Pre-pressure expansion vessel	1.5 bar		
Safety valve	—	3 bar	
Dimensions (h x w x d)	1541 x 2580 x 734 mm		
Weight			
Machine weight	496 kg	514 kg	526 kg
Operation weight	503 kg	524 kg	592 kg
Casing			
Colour	Ivory white / Munsell code 5Y7.5/1 / ± RAL 7044		
Material	Polyester coated galvanised steel plate		
Sound power level (2)	81 dBA		
Safety devices	■ Low-pressure switch ■ High-pressure switch ■ Pump motor overcurrent ■ Discharge temperature protection ■ Outlet water temperature protection ■ Compressor motor overcurrent relay ■ Fan thermal protector ■ Anti-recycling and guard timer ■ Digital display controller with electronic temperature control ■ Reverse phase protector ■ Flow switch.		

(1): The table below contains the minimum water volume settings.

Setting	EUWA*24KAZW1
The minimum water volume for standard thermostat difference setting	3 K
For reduced setting multiply this water volume by	3/new setting
Minimum allowable setting	0.1 K

(2): The sound power level is an absolute value that does not depend on the surroundings or the distance. It cannot be measured in the field (ISO 9614).

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers a leaving evaporator water temperature from 5°C (-5°C/-10°C for ZH/ZL option) to 20°C (pull down condition to 25°C).

1.6 Technical Specifications: EUWY*5-8KAZW1

Technical specifications

The table below contains the technical specifications.

Model	EUWYN5KAZW1	EUWYP5KAZW1	EUWYB5KAZW1	EUWYN8KAZW1	EUWYP8KAZW1	EUWYB8KAZW1
Nominal capacity	Cooling: 9.1 kW Heating: 11.9 kW			Cooling: 17.1 kW Heating: 18.5 kW		
Nominal input	Cooling: 3.78 kW Heating: 4.59 kW			Cooling: 7.45 kW Heating: 7.10 kW	Cooling: 7.46 kW Heating: 7.10 kW	
Capacity steps	0-100%					
Compressor						
Type	Hermetically sealed scroll					
Speed	2900 rpm					
Crankcase heater	33 W			50 W		
No. x model (W1)	1 x JT140BF-YE			1 x JT212DA-YE		
Evaporator						
Type	Brased plate-heat exchanger					
No. x model	1 x AC50-34HX			1 x AC50-40HX		
Min.water volume in the system (1)	43 l			82 l		
Water flow rate	Min.: 21 l/min Max.: 68 l/min			Min.: 31 l/min Max.: 106 l/min		
Nominal water flow	Cooling: 26 l/min Heating: 34 l/min			Cooling: 49 l/min Heating: 53 l/min		
Nom. water pressure drop	Cooling: 10 kPa Heating: 17 kPa			Cooling: 25 kPa Heating: 29 kPa		
Insulation material	Climaflex					
Condenser						
Type	Cross fin coil Hi-X tubes and PE coated waffle louvre fins					
Rows x stages x fin pitch	2 x 40 x 2					
Face area	1.570 m²					
Nominal air flow	160 m³/min			170 m³/min		
Discharge	Vertical					
Fan type	Direct drive					
No. of fans	2					
No. of motors x output	2 x 140 kW			1 x 190 kW and 1 x 230 kW		
Piping connections						
Evap. water in/outlet	FBSP 1-1/4”					
Refrigerant circuit						
Refrigerant type	R-407C					
Refrigerant charge	4.6 kg			4.7 kg		
Refrigerant control	Thermostatic expansion valve					
Oil type	Idemitsu FVC 68D					

1

Model	EUWYN5KAZW1	EUWYP5KAZW1	EUWYB5KAZW1	EUWYN8KAZW1	EUWYP8KAZW1	EUWYB8KAZW1
Oil charge volume	1.5 l			2.7 l		
No. of circuits	1					
Pump						
No. x type	__	1 x Horizontal multi-stage end-suction		__	1 x Horizontal multi-stage end-suction	
Model	__	CH4-30		__	CH4-30	
Nominal static height pump	__	Cooling: 244 kPa Heating: 236 kPa		__	Cooling: 219 kPa Heating: 214 kPa	
Nominal static height unit	__	Cooling: 223 kPa Heating: 205 kPa		__	Cooling: 171 kPa Heating: 160 kPa	
Hydraulic components						
Buffer tank	__		55 l	__		55 l
Unit water volume	2 l	3 l	59 l	3 l	3 l	59 l
Expansion vessel	__	12 l		__	12 l	
Pre-pressure expansion vessel	1.5 bar			1.5 bar		
Safety valve	__	3 bar		__	3 bar	
Dimensions (h x w x d)	1230 x 1290 x 734 mm					
Weight						
Machine weight	163 kg	181 kg	193 kg	227 kg	241 kg	253 kg
Operation weight	165 kg	184 kg	252 kg	230 kg	244 kg	312 kg
Casing						
Colour	Ivory white / Munsell code 5Y7.5/1 / ± RAL 7044					
Material	Polyester coated galvanised steel plate					
Sound power level (2)	67 dBA			76 dBA		
Safety devices	■ Low-pressure switch ■ High-pressure switch ■ Pump motor overcurrent ■ Discharge temperature control ■ Outlet water temperature protection ■ Compressor motor overcurrent relay ■ Fan thermal protector ■ Anti-recycling and guard timer ■ Digital display controller with electronic temperature control ■ Reverse phase protector ■ Flow switch.					

(1): The table below contains the minimum water volume settings.

Setting	EUWY*5-8KAZW1
The minimum water volume for standard thermostat difference setting	3 K
For reduced setting multiply this water volume by	3/new setting
Minimum allowable setting	0.1 K

(2): The sound power level is an absolute value that does not depend on the surroundings or the distance. It cannot be measured in the field (ISO 9614).

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers:

- A leaving evaporator water temperature from 5°C (-5°C/-20°C for ZH/ZL option) to 20°C (pull down condition to 25°C).
- A leaving condensor water temperature from 35°C to 50°C.

1

1.7 Technical Specifications: EUWY*10-12KAZW1

Technical specifications

The table below contains the technical specifications.

Model	EUWYN10KAZW1	EUWYP10KAZW1	EUWYB10KAZW1	EUWYN12KAZW1	EUWYP12KAZW1	EUWYB12KAZW1
Nominal capacity	Cooling: 21.0 kW Heating: 24.0 kW			Cooling: 25.0 kW Heating: 27.0 kW		
Nominal input	Cooling: 8.57 kW Heating: 9.10 kW			Cooling: 11.4 kW Heating: 10.8 kW		
Capacity steps	0-100%					
Compressor						
Type	Hermetically sealed scroll					
Speed	2900 rpm					
Crankcase heater	50 W					
No. x model (W1)	1 x JT265DA-YE			1 x JT335DA-YE		
Evaporator						
Type	Brased plate-heat exchanger					
No. x model	1 x AC50-50HX					
Min.water volume in the system (1)	100 l			119 l		
Water flow rate	Min.: 38 l/min Max.: 137 l/min			Min.: 45 l/min Max.: 155 l/min		
Nominal water flow	Cooling: 60 l/min Heating: 69 l/min			Cooling: 72 l/min Heating: 77 l/min		
Nom. water pressure drop	Cooling: 24 kPa Heating: 31 kPa			Cooling: 33 kPa Heating: 38 kPa		
Insulation material	Climaflex					
Condenser						
Type	Cross fin coil Hi-X tubes and PE coated waffle louvre fins					
Rows x stages x fin pitch	2 x 50 x 2					
Face area	1.970 m²					
Nominal air flow	170 m³/min					
Discharge	Vertical					
Fan type	Direct drive					
No. of fans	2					
No. of motors x output	1 x 190 kW and 1 x 230 kW					
Piping connections						
Evap. water in/outlet	FBSP 1-1/4”					
Refrigerant circuit						
Refrigerant type	R-407C					
Refrigerant charge	5.4 kg					
Refrigerant control	Thermostatic expansion valve					
Oil type	Idemitsu FVC 68D					

Model	EUWYN10KAZW1	EUWYP10KAZW1	EUWYB10KAZW1	EUWYN12KAZW1	EUWYP12KAZW1	EUWYB12KAZW1
Oil charge volume	2.7 l					
No. of circuits	1					
Pump						
No. x type	—	1 x Horizontal multi-stage end-suction		—	1 x Horizontal multi-stage end-suction	
Model	—	CH4-30		—	CH4-30	
Nominal static height pump	—	Cooling: 205 kPa Heating: 193 kPa		—	Cooling: 188 kPa Heating: 180 kPa	
Nominal static height unit	—	Cooling: 151 kPa Heating: 127 kPa		—	Cooling: 118 kPa Heating: 100 kPa	
Hydraulic components						
Buffer tank	—		55 l	—		55 l
Unit water volume	3 l	3 l	59 l	3 l	3 l	59 l
Expansion vessel	—	12 l		—	12 l	
Pre-pressure expansion vessel	1.5 bar			1.5 bar		
Safety valve	—	3 bar		—	3 bar	
Dimensions (h x w x d)	1450 x 1290 x 734 mm					
Weight						
Machine weight	258 kg	272 kg	284 kg	258 kg	272 kg	284 kg
Operation weight	261 kg	275 kg	343 kg	261 kg	275 kg	343 kg
Casing						
Colour	Ivory white / Munsell code 5Y7.5/1 / ± RAL 7044					
Material	Polyester coated galvanised steel plate					
Sound power level (2)	78 dBA					
Safety devices	■ Low-pressure switch ■ High-pressure switch ■ Pump motor overcurrent ■ Discharge temperature control ■ Outlet water temperature protection ■ Compressor motor overcurrent relay ■ Fan thermal protector ■ Anti-recycling and guard timer ■ Digital display controller with electronic temperature control ■ Reverse phase protector ■ Flow switch.					

(1): The table below contains the minimum water volume settings.

Setting	EUWY*10-12KAZW1
The minimum water volume for standard thermostat difference setting	3 K
For reduced setting multiply this water volume by	3/new setting
Minimum allowable setting	0.1 K

1

(2): The sound power level is an absolute value that does not depend on the surroundings or the distance. It cannot be measured in the field (ISO 9614).

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers:

- A leaving evaporator water temperature from 5°C (-5°C/-20°C for ZH/ZL option) to 20°C (pull down condition to 25°C).
- A leaving condensor water temperature from 35°C to 50°C.

1.8 Technical Specifications: EUWY*16-20KAZW1

Technical specifications

The table below contains the technical specifications.

Model	EUWYN16KAZW1	EUWYP16KAZW1	EUWYB16KAZW1	EUWYN20KAZW1	EUWYP20KAZW1	EUWYB20KAZW1
Nominal capacity	Cooling: 34.2 kW Heating: 37.0 kW			Cooling: 40.0 kW Heating: 46.0 kW		
Nominal input	Cooling: 14.9 kW Heating: 14.2 kW			Cooling: 16.3 kW Heating: 17.4 kW		
Capacity steps	0-100%					
Compressor						
Type	Hermetically sealed scroll					
Speed	2900 rpm					
Crankcase heater	50 W					
No. x model (W1)	2 x JT212DA-YE			2 x JT265DA-YE		
Evaporator						
Type	Brased plate-heat exchanger					
No. x model	1 x AC130-50DQ			1 x AC130-58DQ		
Min.water volume in the system (1)	82 l			100 l		
Water flow rate	Min.: 61 l/min Max.: 212 l/min			Min.: 75 l/min Max.: 275 l/min		
Nominal water flow	Cooling: 98 l/min Heating: 106 l/min			Cooling: 120 l/min Heating: 137 l/min		
Nom. water pressure drop	Cooling: 12 kPa Heating: 14 kPa			Cooling: 13 kPa Heating: 17 kPa		
Insulation material	Climaflex					
Condenser						
Type	Cross fin coil Hi-X tubes and PE coated waffle louvre fins					
Rows x stages x fin pitch	2 x 40 x 2 mm			2 x 50 x 2 mm		
Face area	2 x 1.570 m²			2 x 1.970 m²		
Nominal air flow	2 x 170 m³/min					
Discharge	Vertical					
Fan type	Direct drive					
No. of fans	4					
No. of motors x output	2 x 190 kW + 2 x 230 kW					
Piping connections						
Evap. water in/outlet	FBSP 2”					
Refrigerant circuit						
Refrigerant type	R-407C					
Refrigerant charge	2 x 5.1 kg			2 x 5.2 kg		
Refrigerant control	Thermostatic expansion valve					
Oil type	Idemitsu FVC 68D					

1

Model	EUWYN16KAZW1	EUWYP16KAZW1	EUWYB16KAZW1	EUWYN20KAZW1	EUWYP20KAZW1	EUWYB20KAZW1
Oil charge volume	2 x 2.7 l					
No. of circuits	2					
Pump						
No. x type	—	1 x Horizontal multi-stage end-suction		—	1 x Horizontal multi-stage end-suction	
Model	—	CH8-30		—	CH8-30	
Nominal static height pump	—	Cooling: 251 kPa Heating: 243 kPa		—	Cooling: 227 kPa Heating: 204 kPa	
Nominal static height unit	—	Cooling: 209 kPa Heating: 195 kPa		—	Cooling: 171 kPa Heating: 134 kPa	
Hydraulic components						
Buffer tank	—		55 l	—		55 l
Unit water volume	6 l	9 l	65 l	6 l	10 l	66 l
Expansion vessel	—	12 l		—	12 l	
Pre-pressure expansion vessel	1.5 bar					
Safety valve	—	3 bar		—	3 bar	
Dimensions (h x w x d)	1321 x 2580 x 734 mm			1541 x 2580 x 734 mm		
Weight						
Machine weight	455 kg	473 kg	485 kg	516 kg	534 kg	546 kg
Operation weight	461 kg	482 kg	550 kg	522 kg	544 kg	612 kg
Casing						
Colour	Ivory white / Munsell code 5Y7.5/1 / ± RAL 7044					
Material	Polyester coated galvanised steel plate					
Sound power level (2)	79 dBA			81 dBA		
Safety devices	■ Low-pressure switch ■ High-pressure switch ■ Pump motor overcurrent ■ Discharge temperature protection ■ Outlet water temperature protection ■ Compressor motor overcurrent relay ■ Fan thermal protector ■ Anti-recycling and guard timer ■ Digital display controller with electronic temperature control ■ Reverse phase protector ■ Flow switch.					

(1): The table below contains the minimum water volume settings.

Setting	EUWY*16-20KAZW1
The minimum water volume for standard thermostat difference setting	3 K
For reduced setting multiply this water volume by	3/new setting
Minimum allowable setting	0.1 K

(2): The sound power level is an absolute value that does not depend on the surroundings or the distance. It cannot be measured in the field (ISO 9614).

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers:

- A leaving evaporator water temperature from 5°C (-5°C/-20°C for ZH/ZL option) to 20°C (pull down condition to 25°C).
- A leaving condensor water temperature from 35°C to 50°C.

1

1.9 Technical Specifications: EUWY*24KAZW1

Technical specifications

The table below contains the technical specifications.

Model	EUWYN24KAZW1	EUWYP24KAZW1	EUWYB24KAZW1
Nominal capacity	Cooling: 50.0 kW Heating: 54.0 kW		
Nominal input	Cooling: 22.8 kW Heating: 21.6 kW		
Capacity steps	0%-100%		
Compressor			
Type	Hermetically sealed scroll		
Speed	2900 rpm		
Crankcase heater	50 W		
No. x model (W1)	2 x JT335DA-YE		
Evaporator			
Type	Brased plate-heat exchanger		
No. x model	1 x AC130-58DQ		
Min.water volume in the system (1)	119 l		
Water flow rate	Min.: 89 l/min Max.: 309 l/min		
Nominal water flow	Cooling: 149 l/min Heating: 155 l/min		
Nom. water pressure drop	Cooling: 19 kPa Heating: 22 kPa		
Insulation material	Climaflex		
Condenser			
Type	Cross fin coil Hi-X tubes and PE coated waffle louvre fins		
Rows x stages x fin pitch	2 x 50 x 2 mm		
Face area	2 x 1.970 m^2		
Nominal air flow	2 x 170 m^3/min		
Discharge	Vertical		
Fan type	Direct drive		
No. of fans	4		
No. of motors x output	2 x 190 kW + 2 x 230 kW		
Piping connections			
Evap. water in/outlet	FBSP 2”		
Refrigerant circuit			
Refrigerant type	R-407C		
Refrigerant charge	2 x 5.6 kg		
Refrigerant control	Thermostatic expansion valve		
Oil type	Idemitsu FVC 68D		
Oil charge volume	2 x 2.7 l		

Model	EUWYN24KAZW1	EUWYP24KAZW1	EUWYB24KAZW1
No. of circuits	2		
Pump			
No. x type	—	1 x Horizontal multi-stage end-suction	
Model	—	CH8-40	
Nominal static height pump	—	Cooling: 222 kPa Heating: 199 kPa	
Nominal static height unit	—	Cooling: 146 kPa Heating: 111 kPa	
Hydraulic components			
Buffer tank	—		55 l
Unit water volume	6 l	10 l	66 l
Expansion vessel	—	12 l	
Pre-pressure expansion vessel	1.5 bar		
Safety valve	—	3 bar	
Dimensions (h x w x d)			
Weight			
Machine weight	516 kg	534 kg	546 kg
Operation weight	522 kg	544 kg	612 kg
Casing			
Colour	Ivory white / Munsell code 5Y7.5/1 / ± RAL 7044		
Material	Polyester coated galvanised steel plate		
Sound power level (2)	81 dBA		
Safety devices	■ Low-pressure switch ■ High-pressure switch ■ Pump motor overcurrent ■ Discharge temperature protection ■ Outlet water temperature protection ■ Compressor motor overcurrent relay ■ Fan thermal protector ■ Anti-recycling and guard timer ■ Digital display controller with electronic temperature control ■ Reverse phase protector ■ Flow switch.		

(1): The table below contains the minimum water volume settings.

Setting	EUWY*24KAZW1
The minimum water volume for standard thermostat difference setting	3 K
For reduced setting multiply this water volume by	3/new setting
Minimum allowable setting	0.1 K

1

(2): The sound power level is an absolute value that does not depend on the surroundings or the distance. It cannot be measured in the field (ISO 9614).

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

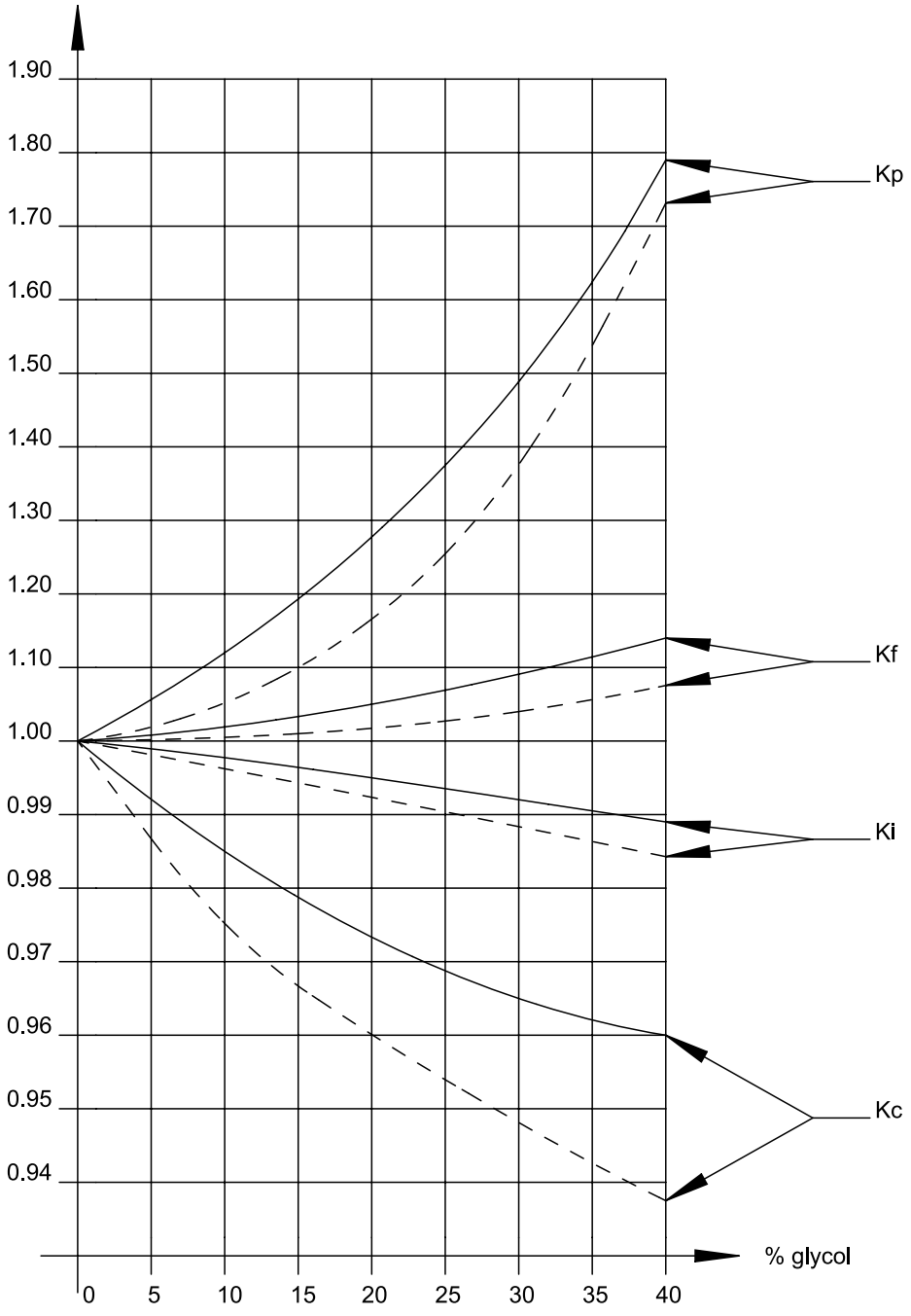
The nominal operation range covers:

- A leaving evaporator water temperature from 5°C (-5°C/-20°C for ZH/ZL option) to 20°C (pull down condition to 25°C).
- A leaving condensor water temperature from 35°C to 50°C.

1.10 Correction factors for glycol

Correction factors

The illustration below shows the correction factors for glycol for EUWA*5-24KAZW1 and EUWY*5-24KAZW1.



1

Legend

The table below describes the patterns and symbols used for the correction factors illustration above.

Pattern	Description
_____	Ethylene glycol
. – – -	Propylene glycol
Kc	Correction on cooling capacity
Ki	Correction on power input
Kf	Correction on flow rate
Kp	Correction on pressure drop

Glycol freezing point

The table below contains glycol freezing points for different glycol concentrations.

Type	Concentration (wt%)	0	10	20	30	40
Ethylene glycol	Freezing point °C	0	-4	-9	-16	-23
	Minimum LWE °C	5	2	0	-5	-11
Propylene glycol	Freezing point °C	0	-3	-7	-13	-22
	Minimum LWE °C	5	3	-2	-4	-10

1.11 Electrical Specifications: EUWA*5-8KAZW1

Electrical specifications

The table below contains the electrical specifications (1).

Model	EUWAN5KAZW1	EUWAP5KAZW1	EUWAB5KAZW1	EUWAN8KAZW1	EUWAP8KAZW1	EUWAB8KAZW1
Power supply						
Phase	3N~					
Frequency	50 Hz					
Voltage	400 V					
Voltage tolerance	± 10 %					
Unit						
Starting current	62.2 A	63.5 A		97.9 A	99.2 A	
Nominal running current	7.7 A	9.0 A		13.6 A	14.9 A	
Max. running current	11.2 A	12.5 A		16.9 A	18.2 A	
Recommended fuses	3 x 20 gL/gG	3 x 20 gL/gG		3 x 25 gL/gG	3 x 25 gL/gG	
Fans						
Phase	1~					
Voltage	230 V					
Max. running current	2.2 A			2.9 A		
Compressor						
Phase	3~					
Voltage	400 V					
Starting current	60.0 A			95 A		
Nom. running current	5.5 A			10.7 A		
Max. running current	9.0 A			14 A		
Starting method	Direct on line					
Control circuit						
Phase	1~					
Voltage	230 V					
Recommended fuses	Factory installed					
Pump						
Phase	__	3~		__	3~	
Voltage	__	400.0 V		__	400.0 V	
Max. running current	__	1.3 A		__	1.3 A	

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fan +pumps.

Operation range

The operation range covers a leaving evaporator water temperature from 5°C to 20°C (pull down condition to 25°C).

1.12 Electrical Specifications: EUWA*10-12KAZW1

Electrical specifications

The table below contains the electrical specifications [1].

Model	EUWAN10KAZW1	EUWAP10KAZW1	EUWAB10KAZW1	EUWAN12KAZW1	EUWAP12KAZW1	EUWAB12KAZW1
Power supply						
Phase	3N~					
Frequency	50 Hz					
Voltage	400 V					
Voltage tolerance	± 10 %					
Unit						
Starting current	113 A	114 A		139 A	140 A	
Nominal running current	15.9 A	17.2 A		20.5 A	21.8 A	
Max. running current	19.9 A	21.2 A		26.9 A	28.2 A	
Recommended fuses	3 x 25 gL/gG	3 x 32 gL/gG		3 x 32 gL/gG	3 x 40 gL/gG	
Fans						
Phase	1~					
Voltage	230 V					
Max. running current	2.9 A			2.9 A		
Compressor						
Phase	3~					
Voltage	400 V					
Starting current	110.0 A			136.0 A		
Nom. running current	13.0 A			17.6 A		
Max. running current	17.0 A			24.0 A		
Starting method	Direct on line			Direct on line		
Control circuit						
Phase	1~					
Voltage	230 V					
Recommended fuses	Factory installed					
Pump						
Phase	—	3~		—	3~	
Voltage	—	400.0 V		—	400.0 V	
Max. running current	—	1.3 A		—	1.3 A	

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fan +pumps.

Operation range

The operation range covers a leaving evaporator water temperature from 5°C to 20°C (pull down condition to 25°C).

1.13 Electrical Specifications: EUWA*16-20KAZW1

Electrical specifications

The table below contains the electrical specifications.

Model	EUWAN16KAZW1	EUWAP16KAZW1	EUWAB16KAZW1	EUWAN20KAZW1	EUWAP20KAZW1	EUWAB20KAZW1
Power supply						
Phase	3N~					
Frequency	50 Hz					
Voltage	400 V					
Voltage tolerance	± 10 %					
Unit						
Starting current	97.9 A	99.9 A		113 A	115 A	
Nominal running current	27.2 A	29.2 A		31.8 A	33.8 A	
Max. running current	33.8 A	35.8 A		39.8 A	41.8 A	
Recommended fuses	3 x 40 gL/gG	3 x 50 gL/gG		3 x 50 gL/gG	3 x 50 gL/gG	
Fans						
Phase	1~					
Voltage	230 V					
Max. running current	5.8 A					
Compressor						
Phase	3~					
Voltage	400 V					
Starting current	95.0 A			110.0 A		
Nom. running current	10.7 A			13.0 A		
Max. running current	14.0 A			17.0 A		
Starting method	Direct on line					
Control circuit						
Phase	1~					
Voltage	230/ 24 V AC (supplied by factory installed transformers)					
Recommended fuses	Factory installed					
Crankcase heater (E1/2 HC)	50 W					
Pump						
Phase	—	3~		—	3~	
Voltage	—	400.0 V		—	400.0 V	
Max. running current	—	2.0 A		—	2.0 A	

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fan +pumps.

Operation range

The operation range covers a leaving evaporator water temperature from 5°C to 20°C (pull down condition to 25°C).

1.14 Electrical Specifications: EUWA*24KAZW1

Electrical specifications

The table below contains the electrical specifications.

Model	EUWAN24KAZW1	EUWAP24KAZW1	EUWAB24KAZW1
Power supply			
Phase	3N~		
Frequency	50 Hz		
Voltage	400 V		
Voltage tolerance	± 10 %		
Unit			
Starting current	139 A	142 A	
Nominal running current	41.0 A	43.7 A	
Max. running current	53.8 A	56.5 A	
Recommended fuses	3 x 63 gL/gG	3 x 63 gL/gG	
Fans			
Phase	1~		
Voltage	230 V		
Max. running current	5.8 A		
Compressor			
Phase	3~		
Voltage	400 V		
Starting current	136.0 A		
Nom. running current	17.6 A		
Max. running current	24.0 A		
Starting method	Direct on line		
Control circuit			
Phase	1~		
Voltage	230/ 24 V AC (supplied by factory installed transformers)		
Recommended fuses	Factory installed		
Crankcase heater (E1/2 HC)	50 W	50 W	
Pump			
Phase	—	3~	
Voltage	—	400.0 V	
Max. running current	—	2.7 A	

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fan +pumps.

Operation range

The operation range covers a leaving evaporator water temperature from 5°C to 20°C (pull down condition to 25°C).

1.15 Electrical Specifications: EUWY*5-8KAZW1

Electrical specifications

The table below contains the electrical specifications [1].

Model	EUWYN5KAZW1	EUWYP5KAZW1	EUWYB5KAZW1	EUWYN8KAZW1	EUWYP8KAZW1	EUWYB8KAZW1
Power supply						
Phase	3N~					
Frequency	50 Hz					
Voltage	400 V					
Voltage tolerance	± 10 %					
Unit						
Starting current	62.2 A	63.5 A		97.9 A	99.2 A	
Nominal running current cooling	7.7 A	9.0 A		13.6 A	14.9 A	
Max. running current	11.2 A	12.5 A		16.9 A	18.2 A	
Recommended fuses	3 x 20 gL/gG	3 x 20 gL/gG		3 x 25 gL/gG	3 x 25 gL/gG	
Fans						
Phase	1~					
Voltage	230 V					
Max. running current	2.2 A			2.9 A		
Compressor						
Phase	3~					
Voltage	400 V					
Starting current	60.0 A			95.0 A		
Nom. running current cooling	5.5 A			10.7 A		
Max. running current	9.0 A			14.0 A		
Starting method	Direct on line					
Control circuit						
Phase	1~					
Voltage	230 V					
Recommended fuses	Factory installed					
Pump						
Phase	—	3~		—	3~	
Voltage	—	400.0 V		—	400.0 V	
Max. running current	—	1.3 A		—	1.3 A	

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers:

- A leaving evaporator water temperature from 5°C (-5°C/-20°C for ZH/ZL option) to 20°C (pull down condition to 25°C).
- A leaving condensor water temperature from 35°C to 50°C.

1.16 Electrical Specifications: EUWY*10-12KAZW1

Electrical specifications

The table below contains the electrical specifications [1].

Model	EUWYN10KAZW1	EUWYP10KAZW1	EUWYB10KAZW1	EUWYN12KAZW1	EUWYP12KAZW1	EUWYB12KAZW1
Power supply						
Phase	3N~					
Frequency	50 Hz					
Voltage	400 V					
Voltage tolerance	± 10 %					
Unit						
Starting current	113 A	114 A		139 A	140 A	
Nominal running current cooling	15.9 A	17.2 A		20.5 A	21.8 A	
Max. running current	19.9 A	21.2 A		26.9 A	28.2 A	
Recommended fuses	3 x 25 gL/gG	3 x 32 gL/gG		3 x 32 gL/gG	3 x 40 gL/gG	
Fans						
Phase	1~					
Voltage	230 V					
Max. running current	2.9 A					
Compressor						
Phase	3~					
Voltage	400 V					
Starting current	110.0 A			136.0 A		
Nom. running current cooling	13.0 A			17.6 A		
Max. running current	17.0 A			24.0 A		
Starting method	Direct on line					
Control circuit						
Phase	1~					
Voltage	230 V					
Recommended fuses	Factory installed					
Pump						
Phase	—	3~		—	3~	
Voltage	—	400.0 V		—	400.0 V	
Max. running current	—	1.3 A		—	1.3 A	

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers:

- A leaving evaporator water temperature from 5°C (-5°C/-20°C for ZH/ZL option) to 20°C (pull down condition to 25°C).
- A leaving condensor water temperature from 35°C to 50°C.

1.17 Electrical Specifications: EUWY*16-20KAZW1

Electrical specifications

The table below contains the electrical specifications.

Model	EUWYN16KAZW1	EUWYP16KAZW1	EUWYB16KAZW1	EUWYN20KAZW1	EUWYP20KAZW1	EUWYB20KAZW1
Power supply						
Phase	3N~					
Frequency	50 Hz					
Voltage	400 V					
Voltage tolerance	± 10 %					
Unit						
Starting current	97.9 A	99.9 A		113 A	115 A	
Nominal running current cooling	27.2 A	29.2 A		31.8 A	33.8 A	
Max. running current	33.8 A	35.8 A		39.8 A	41.8 A	
Recommended fuses	3 x 40 gL/gG	3 x 50 gL/gG		3 x 50 gL/gG	3 x 50 gL/gG	
Fans						
Phase	1~					
Voltage	230 V					
Max. running current	5.8 A					
Compressor						
Phase	3~					
Voltage	400 V					
Starting current	95.0 A			110.0 A		
Nom. running current cooling	10.7 A			13.0 A		
Max. running current	14.0 A			17.0 A		
Starting method	Direct on line					
Control circuit						
Phase	1~					
Voltage	230 V					
Recommended fuses	Factory installed					
Pump						
Phase	__	3~		__	3~	
Voltage	__	400.0 V		__	400.0 V	
Max. running current	__	2.0 A		__	2.0 A	

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

The nominal operation range covers:

- A leaving evaporator water temperature from 5°C (-5°C/-20°C for ZH/ZL option) to 20°C (pull down condition to 25°C).
- A leaving condensor water temperature from 35°C to 50°C.

1.18 Electrical Specifications: EUWY*24KAZW1

Electrical specifications

The table below contains the electrical specifications.

Model	EUWYN24KAZW1	EUWYP24KAZW1	EUWYB24KAZW1
Power supply			
Phase	3N~		
Frequency	50 Hz		
Voltage	400 V		
Voltage tolerance	± 10 %		
Unit			
Starting current	139 A	142 A	
Nominal running current cooling	41.0 A	43.7 A	
Max. running current	53.8 A	56.5 A	
Recommended fuses	3 x 63 gL/gG	3 x 63 gL/gG	
Fans			
Phase	1~		
Voltage	230 V		
Max. running current	5.8 A		
Compressor			
Phase	3~		
Voltage	400 V		
Starting current	136.0 A		
Nom. running current cooling	17.6 A		
Max. running current	24.0 A		
Starting method	Direct on line		
Control circuit			
Phase	1~		
Voltage	230 V		
Recommended fuses	Factory installed		
Pump			
Phase	—	3~	
Voltage	—	400.0 V	
Max. running current	—	2.7 A	

1

Nominal conditions

The nominal conditions are as follows:

- Entering/leaving evaporator water temperature 12.5/7°C
- Ambient air temperature 35°C
- Power input is total input: Compressor + control circuit + fans + pump.

Operation range

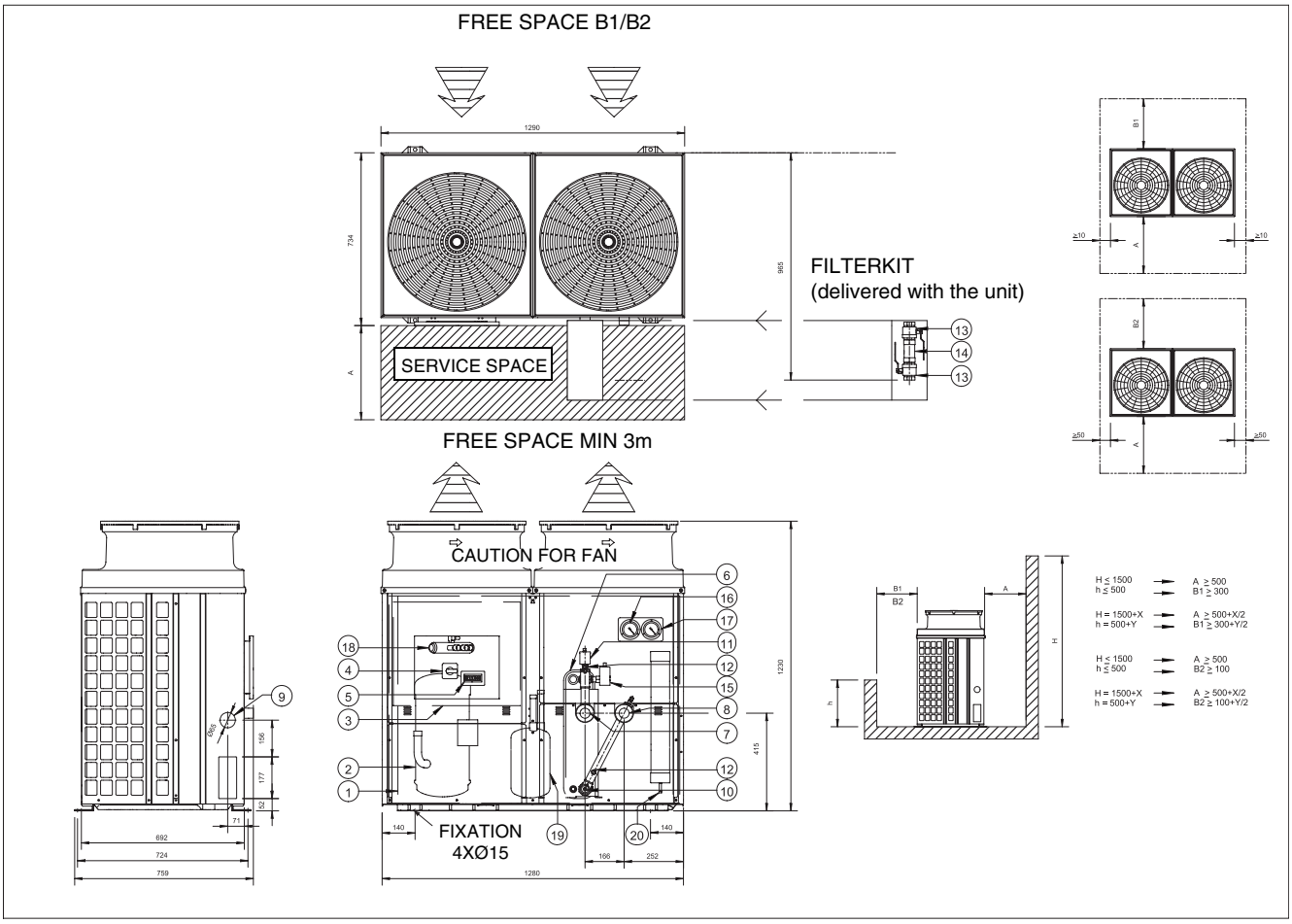
The nominal operation range covers:

- A leaving evaporator water temperature from 5°C (-5°C/-20°C for ZH/ZL option) to 20°C (pull down condition to 25°C).
- A leaving condensor water temperature from 35°C to 50°C.

1.19 Outlook Drawing: EUWAN5-8KAZW1/EUWYN5-8KAZW1

EUWAN5-8KAZW1/ EUWYN5-8KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below lists the components.

No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Digital display controller
6	Water heat exchanger
7	Water IN connection: 1 1/4” M BSP
8	Water OUT connection: 1 1/4” M BSP
9	Power supply intake
10	Drain

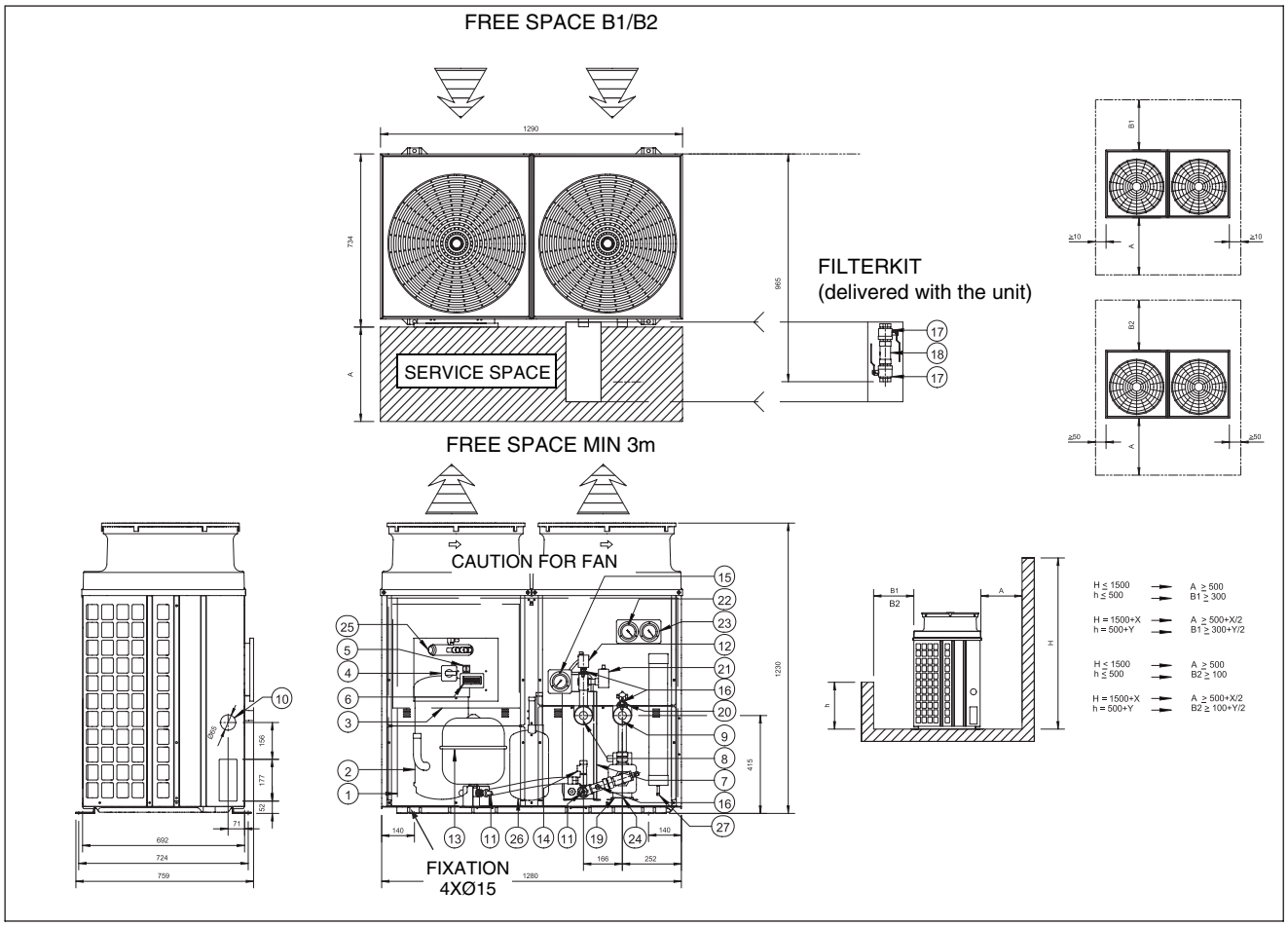
No.	Component
11	Air purge
12	Pressure port
13	Ball valve: 1 1/4” BSP
14	Water filter: 1 1/4” BSP
15	Flow switch
16	High pressure gauge (optional)
17	Low pressure gauge (optional)
18	4-way valve (only on H/P models)
19	Accumulator (only on H/P models)
20	Liquid receiver (only on H/P models)

1

1.20 Outlook Drawing: EUWAP5-8KAZW1/EUWYP5-8KAZW1

EUWAP5-8KAZW1/ EUWYP5-8KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below lists the components.

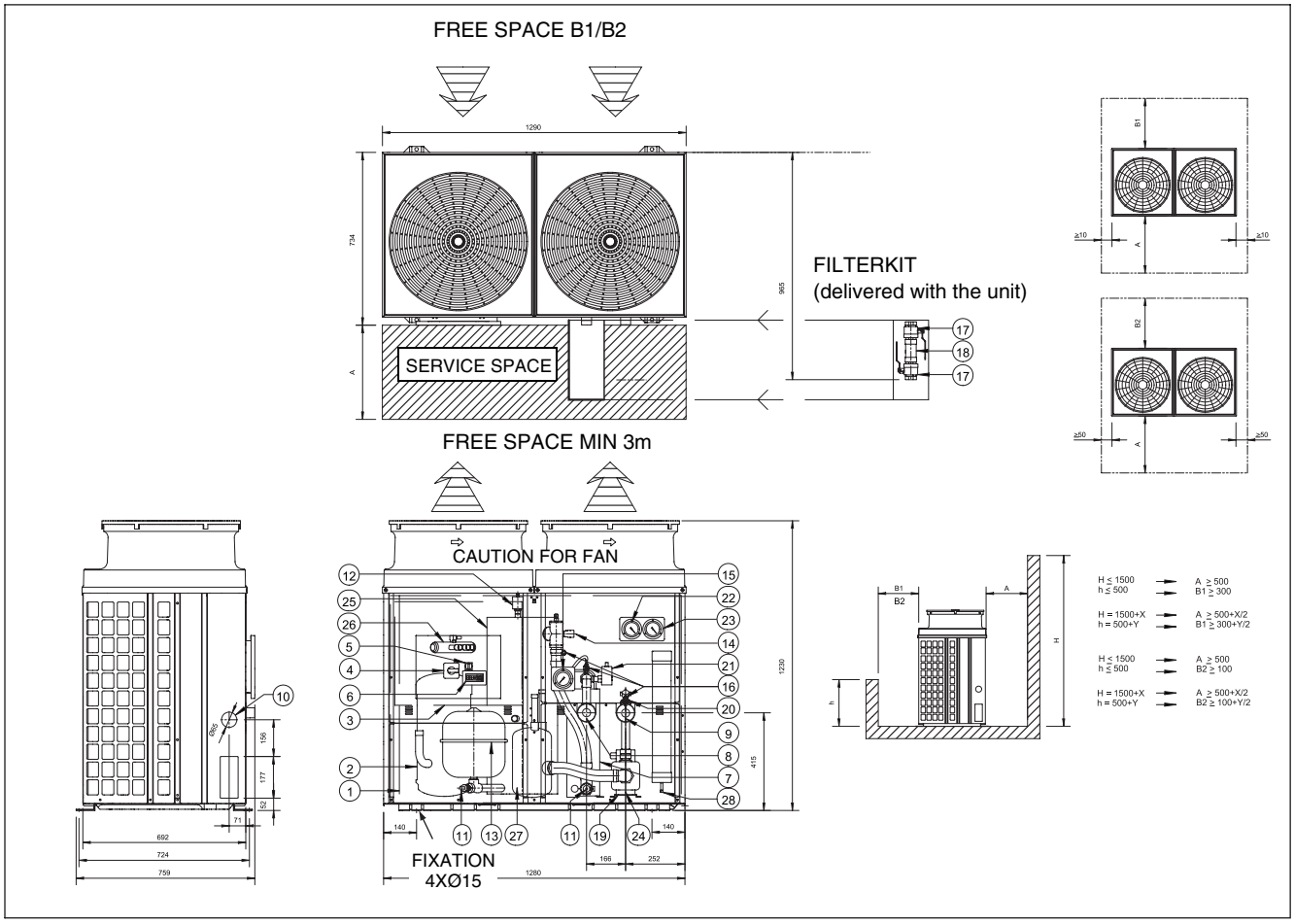
No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Pump switch
6	Digital display controller
7	Water heat exchanger
8	Water IN connection: 1 1/4” M BSP
9	Water OUT connection: 1 1/4” M BSP
10	Power supply intake
11	Drain
12	Air purge
13	Expansion vessel
14	Safety valve

No.	Component
15	Manometer (water)
16	Pressure port
17	Ball valve: 1 1/4” BSP
18	Water filter: 1 1/4” BSP
19	Pump
20	Regulation valve
21	Flow switch
22	High pressure gauge (optional)
23	Low pressure gauge (optional)
24	Pump drain
25	4-way valve (only on H/P models)
26	Accumulator (only on H/P models)
27	Liquid receiver (only on H/P models)

1.21 Outlook Drawing: EUWAB5-8KAZW1/EUWYB5-8KAZW1

EUWAB5-8KAZW1/ EUWYB5-8KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below lists the components.

No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Pump switch
6	Digital display controller
7	Water heat exchanger
8	Water IN connection: 1 1/4” M BSP
9	Water OUT connection: 1 1/4” M BSP
10	Power supply intake
11	Drain
12	Air purge
13	Expansion vessel
14	Safety valve

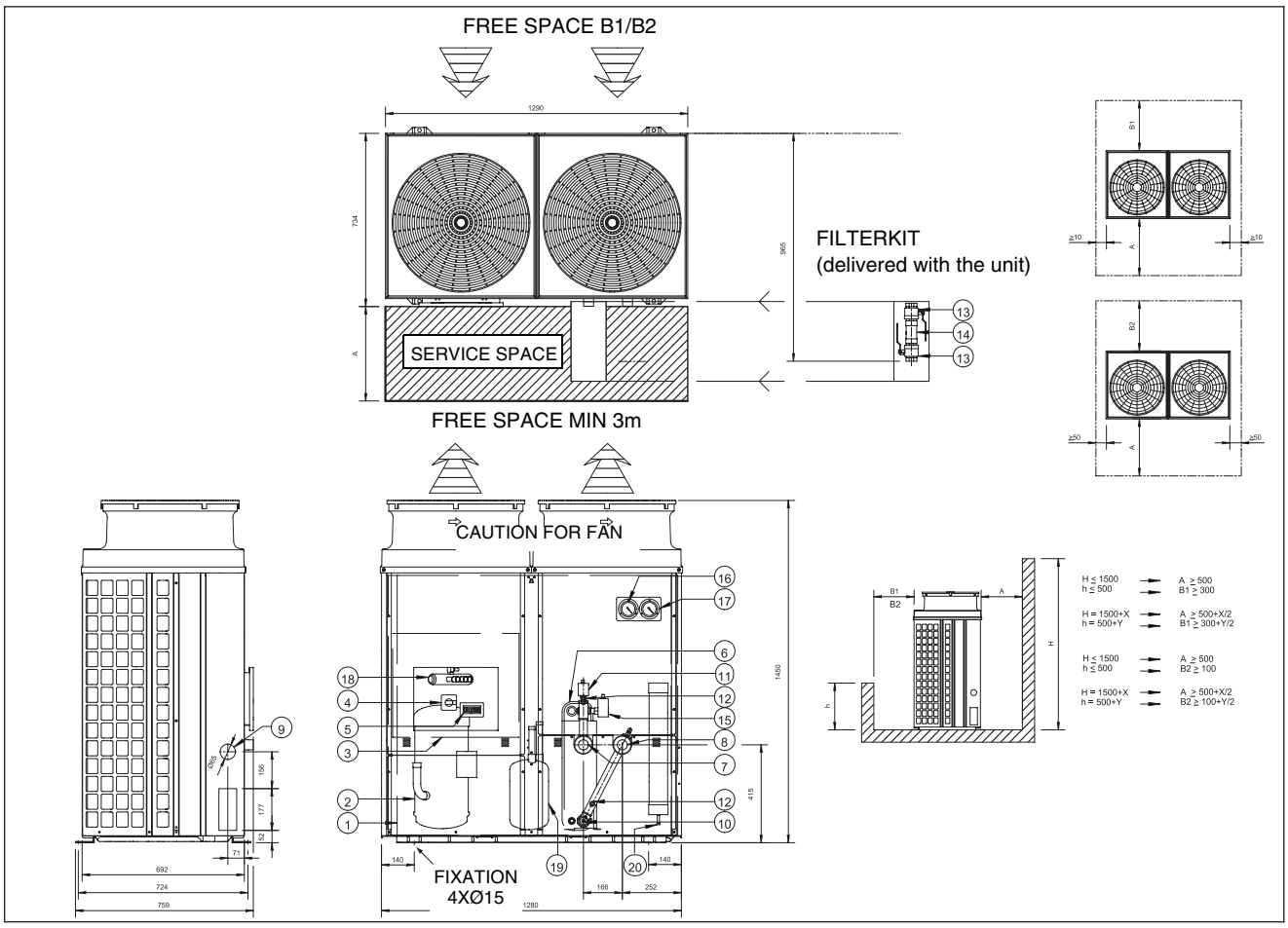
No.	Component
15	Manometer (water)
16	Pressure port
17	Ball valve: 1 1/4” BSP
18	Water filter: 1 1/4” BSP
19	Pump
20	Regulation valve
21	Flow switch
22	High pressure gauge (optional)
23	Low pressure gauge (optional)
24	Pump drain
25	Buffertank
26	4-way valve (only on H/P models)
27	Accumulator (only on H/P models)
28	Liquid receiver (only on H/P models)

1

1.22 Outlook Drawing: EUWAN10-12KAZW1/EUWYN10-12KAZW1

EUWAN10-12KAZW1/EUWYN10-12KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below lists the components:

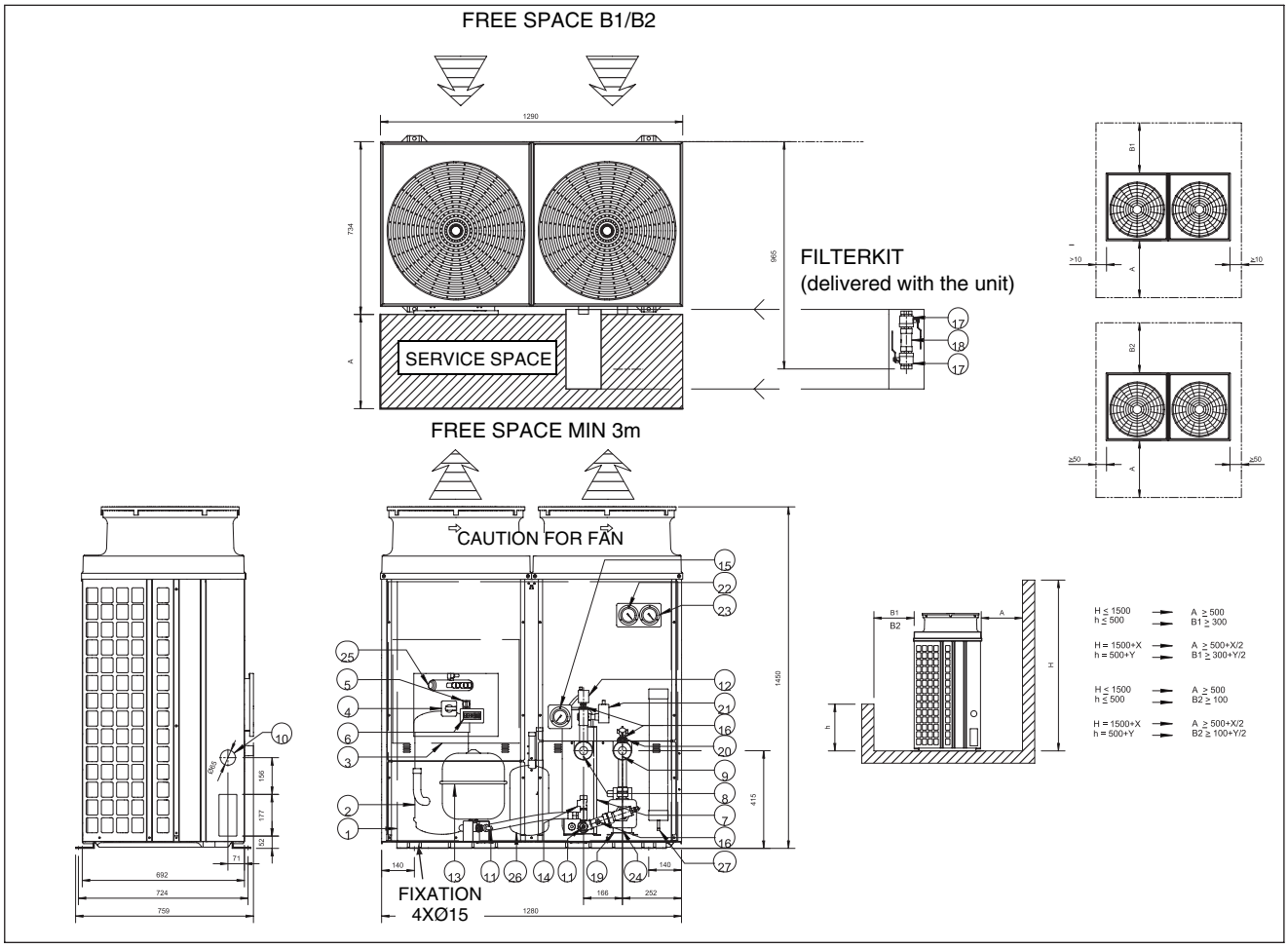
No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Digital display controller
6	Water heat exchanger
7	Water IN connection: 1 1/4” M BSP
8	Water OUT connection: 1 1/4” M BSP
9	Power supply intake
10	Drain

No.	Component
11	Air purge
12	Pressure port
13	Ball valve: 1 1/4” BSP
14	Water filter: 1 1/4” BSP
15	Flow switch
16	High pressure gauge (optional)
17	Low pressure gauge (optional)
18	4-way valve (only on H/P models)
19	Accumulator (only on H/P models)
20	Liquid receiver (only on H/P models)

1.23 Outlook Drawing: EUWAP10-12KAZW1/EUWYP10-12KAZW1

EUWAP10-12KAZW1/EUWYP10-12KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



1

Components

The table below lists the components.

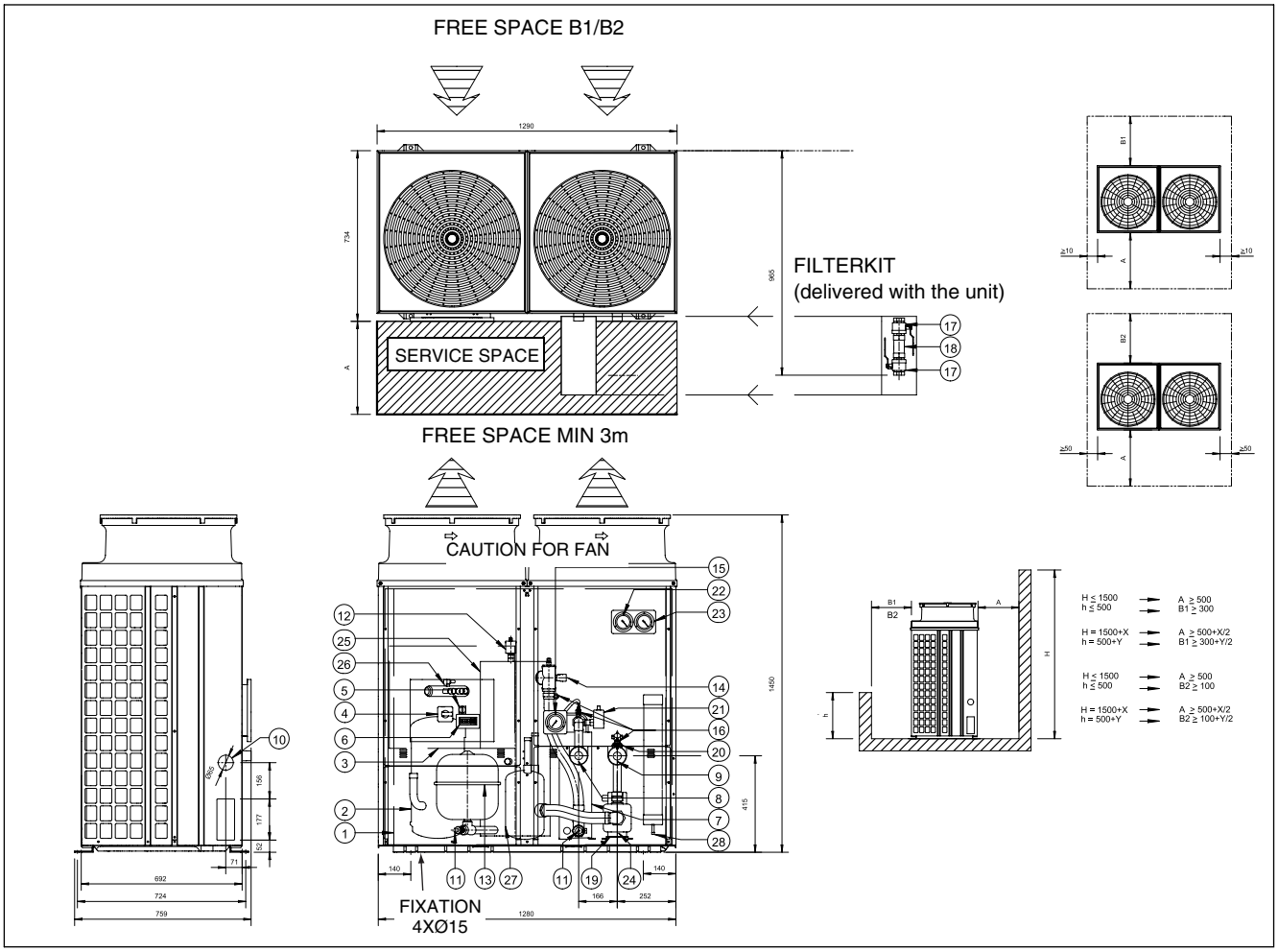
No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Pump switch
6	Digital display controller
7	Water heat exchanger
8	Water IN connection: 1 1/4” M BSP
9	Water OUT connection: 1 1/4” M BSP
10	Power supply intake
11	Drain
12	Air purge
13	Expansion vessel
14	Safety valve

No.	Component
15	Manometer (water)
16	Pressure port
17	Ball valve: 1 1/4” BSP
18	Water filter: 1 1/4” BSP
19	Pump
20	Regulation valve
21	Flow switch
22	High pressure gauge (optional)
23	Low pressure gauge (optional)
24	Pump drain
25	4-way valve (only on H/P models)
26	Accumulator (only on H/P models)
27	Liquid receiver (only on H/P models)

1.24 Outlook Drawing: EUWAB10-12KAZW1/EUWYB10-12KAZW1

EUWAB10-12KAZW1/EUWYB10-12KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



1

Components

The table below lists the components.

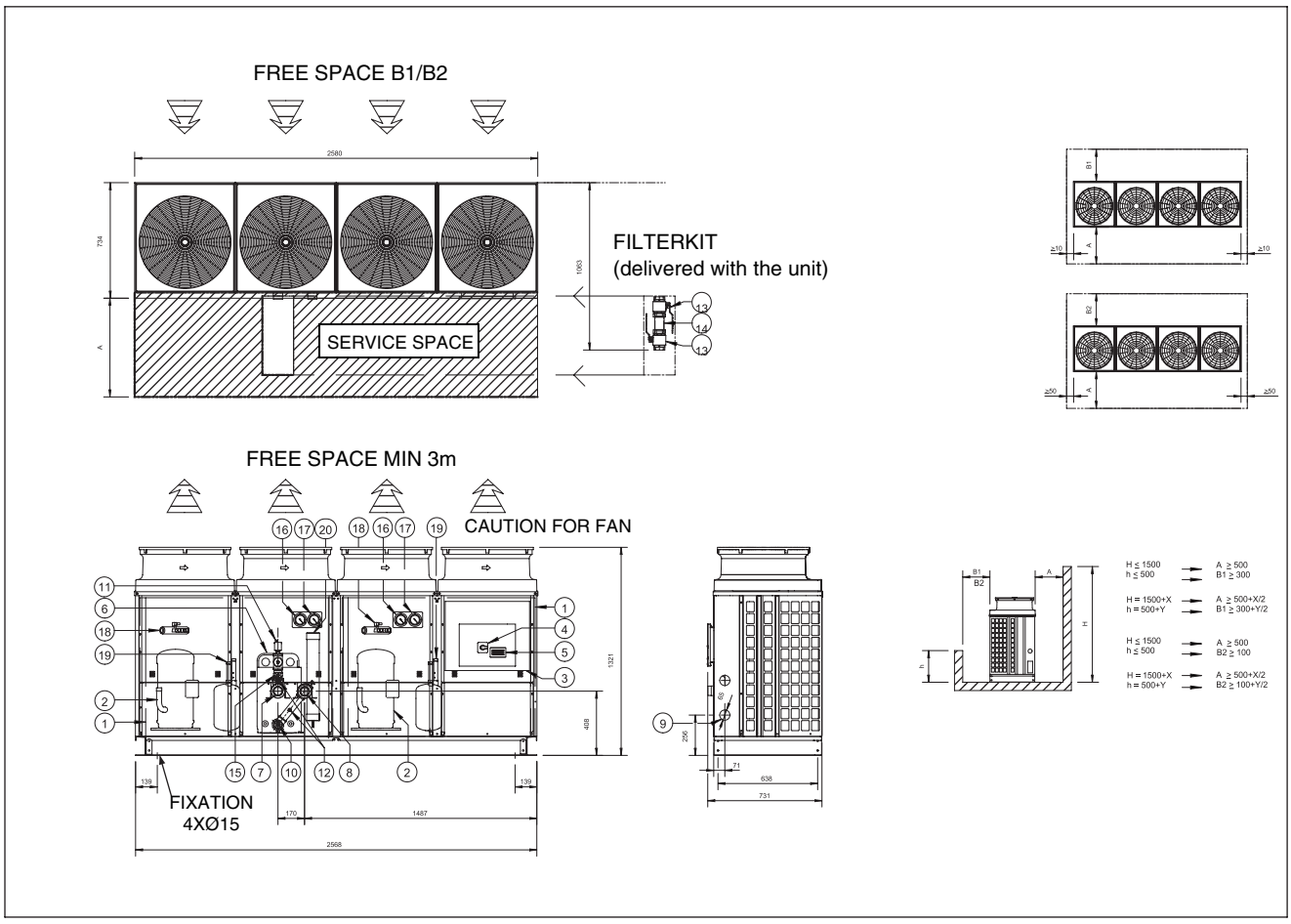
No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Pump switch
6	Digital display controller
7	Water heat exchanger
8	Water IN connection: 1 1/4” M BSP
9	Water OUT connection: 1 1/4” M BSP
10	Power supply intake
11	Drain
12	Air purge
13	Expansion vessel
14	Safety valve

No.	Component
15	Manometer (water)
16	Pressure port
17	Ball valve: 1 1/4” BSP
18	Water filter: 1 1/4” BSP
19	Pump
20	Regulation valve
21	Flow switch
22	High pressure gauge (optional)
23	Low pressure gauge (optional)
24	Pump drain
25	Buffertank
26	4-way valve (only on H/P models)
27	Accumulator (only on H/P models)
28	Liquid receiver (only on H/P models)

1.25 Outlook Drawing: EUWAN16KAZW1/EUWYN16KAZW1

EUWAN16KAZW1/ EUWYN16KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below lists the components.

No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Digital display controller
6	Water heat exchanger
7	Water IN connection: 1 1/4” M BSP
8	Water OUT connection: 1 1/4” M BSP
9	Power supply intake
10	Drain

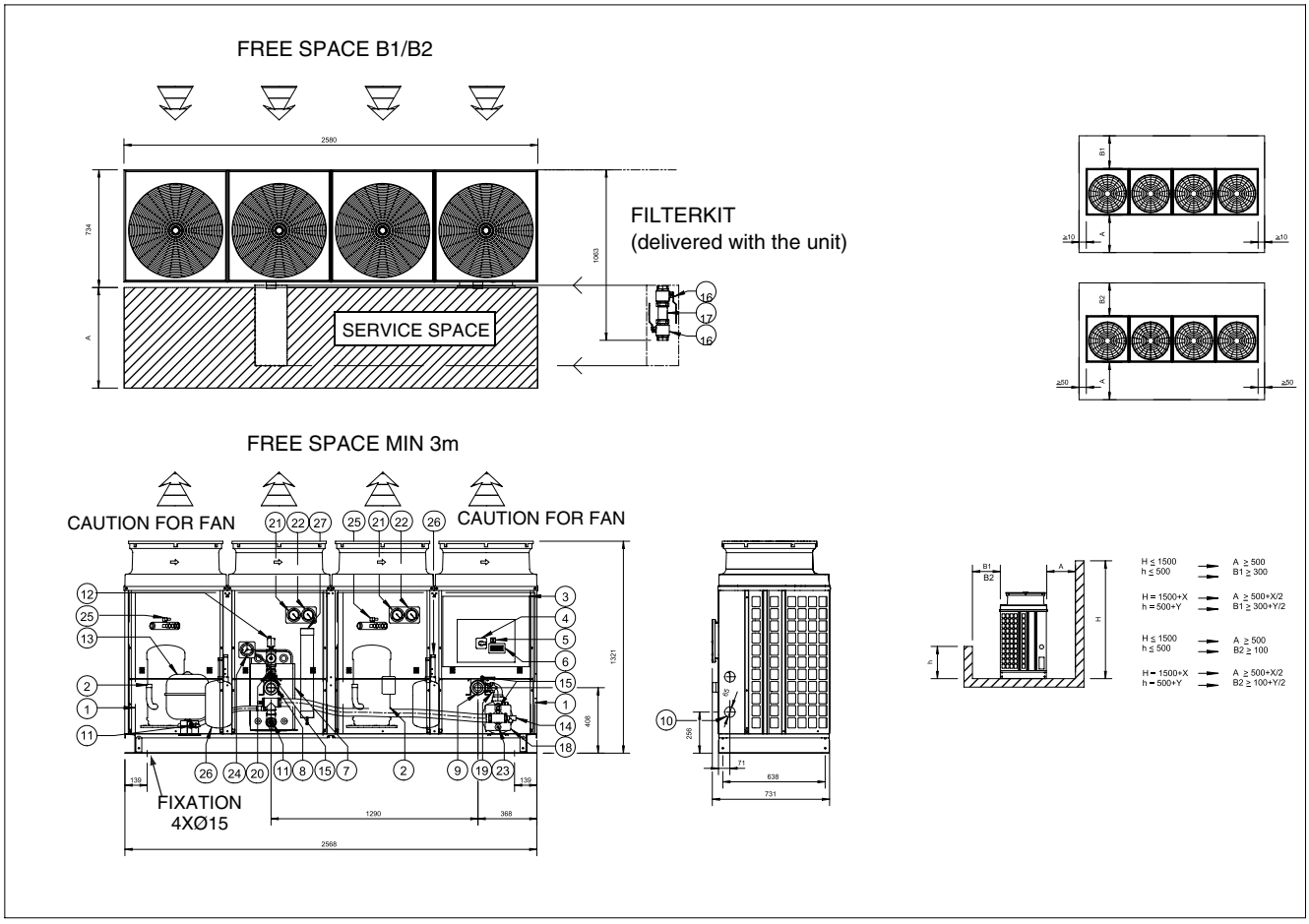
No.	Component
11	Air purge
12	Pressure port
13	Ball valve: 1 1/4” BSP
14	Water filter: 1 1/4” BSP
15	Flow switch
16	High pressure gauge (optional)
17	Low pressure gauge (optional)
18	4-way valve (only on H/P models)
19	Accumulator (only on H/P models)
20	Liquid receiver (only on H/P models)

1

1.26 Outlook Drawing: EUWAP16KAZW1/EUWYP16KAZW1

EUWAP16KAZW1/ EUWYP16KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below lists the components.

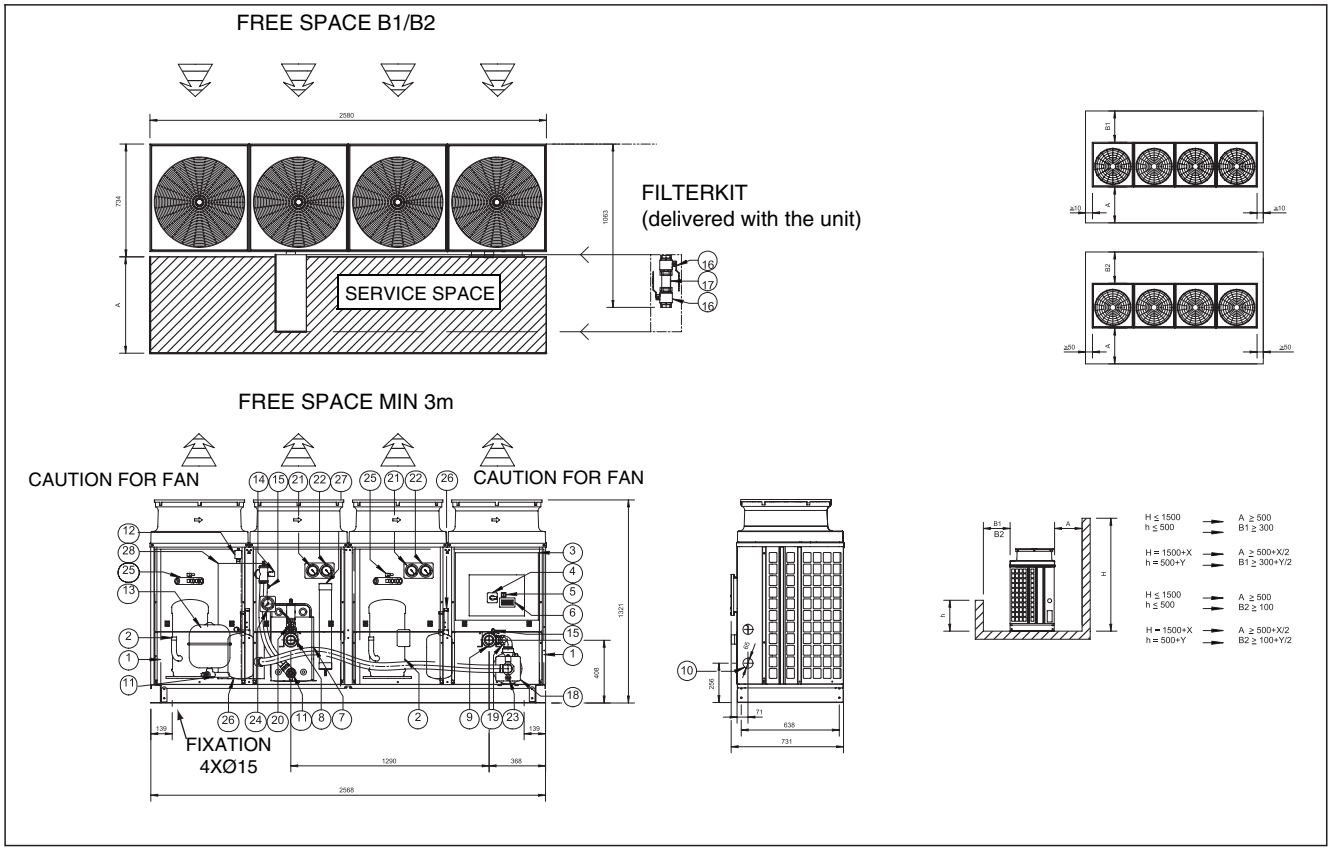
No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Pump switch
6	Digital display controller
7	Water heat exchanger
8	Water IN connection: 2” M BSP
9	Water OUT connection: 2” M BSP
10	Power supply intake
11	Drain
12	Air purge
13	Expansion vessel
14	Safety valve

No.	Component
15	Pressure port
16	Ball valve
17	Water filter
18	Pump
19	Regulation valve
20	Flow switch
21	High pressure gauge (optional)
22	Low pressure gauge (optional)
23	Pump drain
24	Water pressure gauge
25	4-way valve (only on H/P models)
26	Accumulator (only on H/P models)
27	Liquid receiver (only on H/P models)

1.27 Outlook Drawing: EUWAB16KAZW1/EUWAB16KAZW1

EUWAB16KAZW1/ EUWAB16KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below lists the components

No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Pump switch
6	Digital display controller
7	Water heat exchanger
8	Water IN connection: 2” M BSP
9	Water OUT connection: 2” M BSP
10	Power supply intake
11	Drain
12	Air purge
13	Expansion vessel
14	Safety valve

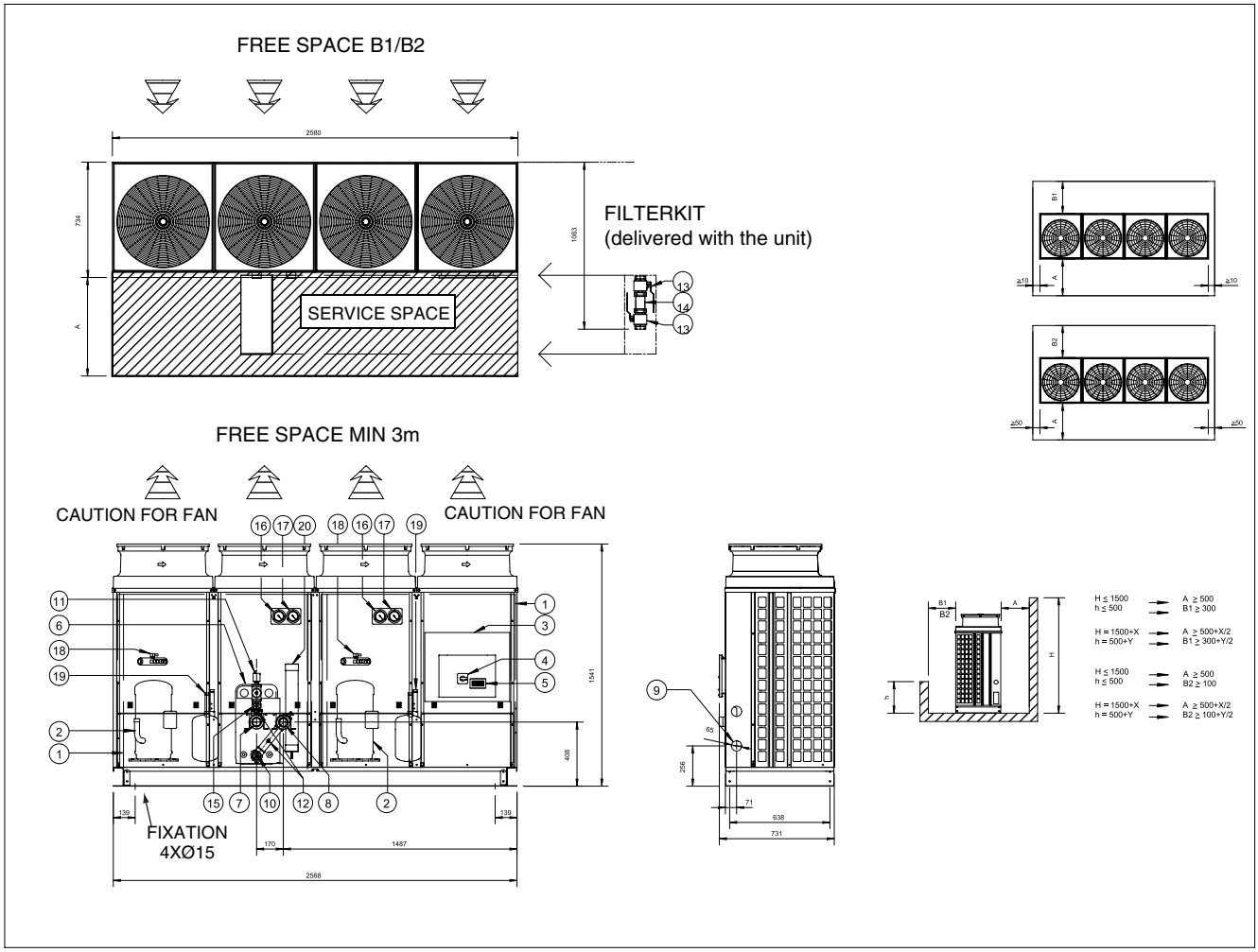
No.	Component
15	Pressure port
16	Ball valve
17	Water filter
18	Pump
19	Regulation valve
20	Flow switch
21	High pressure gauge (optional)
22	Low pressure gauge (optional)
23	Pump drain
24	Water pressure gauge
25	4-way valve (only on H/P models)
26	Accumulator (only on H/P models)
27	Liquid receiver (only on H/P models)
28	Buffertank

1

1.28 Outlook Drawing: EUWAN20-24KAZW1/EUWYN20-24KAZW1

EUWAN20-24KAZW1/EUWYN20-24KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below lists the components.

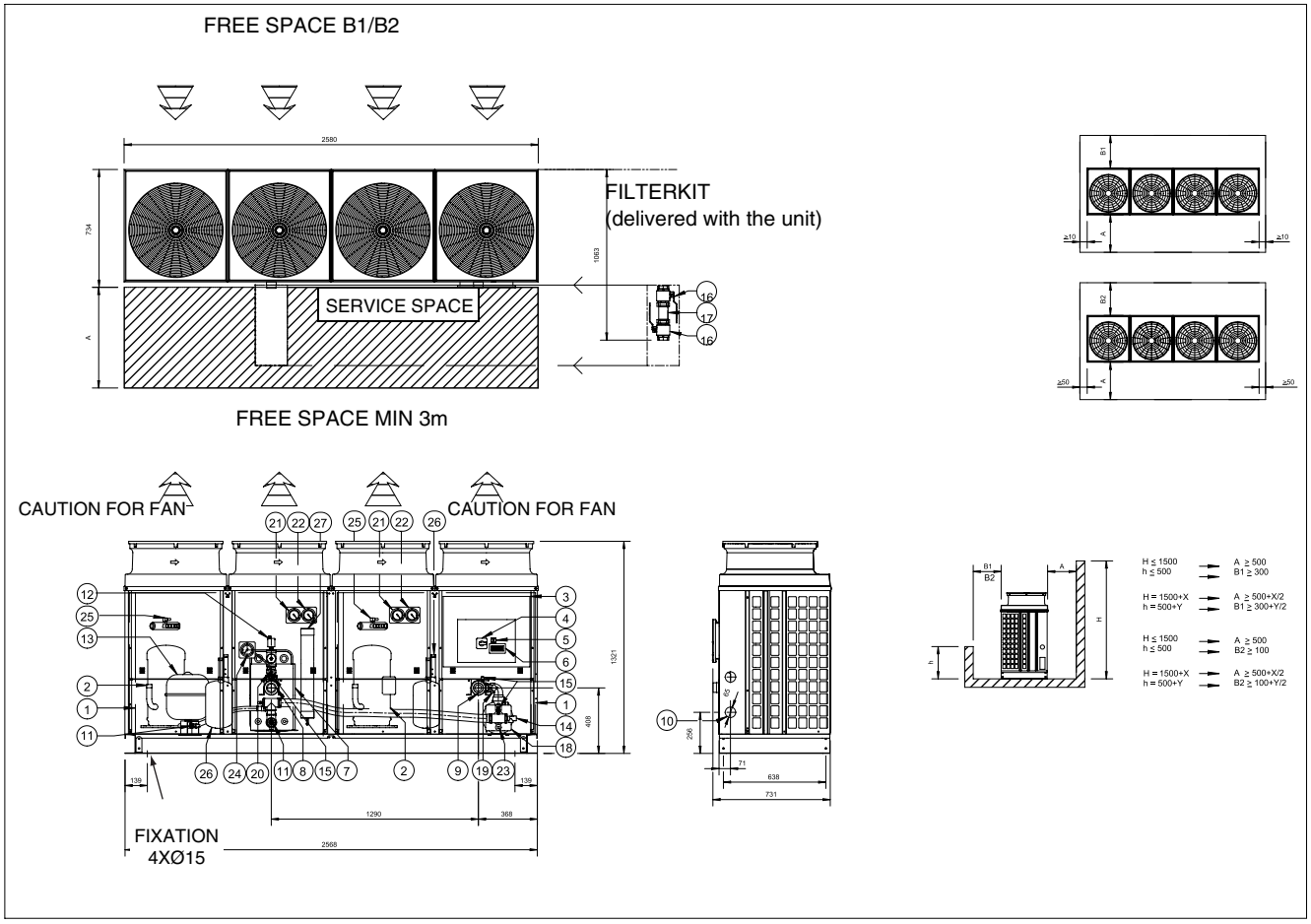
No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Digital display controller
6	Water heat exchanger
7	Water IN connection: 2” M BSP
8	Water OUT connection: 2” M BSP
9	Power supply intake
10	Drain

No.	Component
11	Air purge
12	Pressure port
13	Ball valve
14	Water filter
15	Flow switch
16	High pressure gauge (optional)
17	Low pressure gauge (optional)
18	4-way valve (only on H/P models)
19	Accumulator (only on H/P models)
20	Liquid receiver (only on H/P models)

1.29 Outlook Drawing: EUWAP20-24KAZW1/EUWYP20-24KAZW1

EUWAP20-24KAZW1/EUWYP20-24KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



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Components

The table below lists the components.

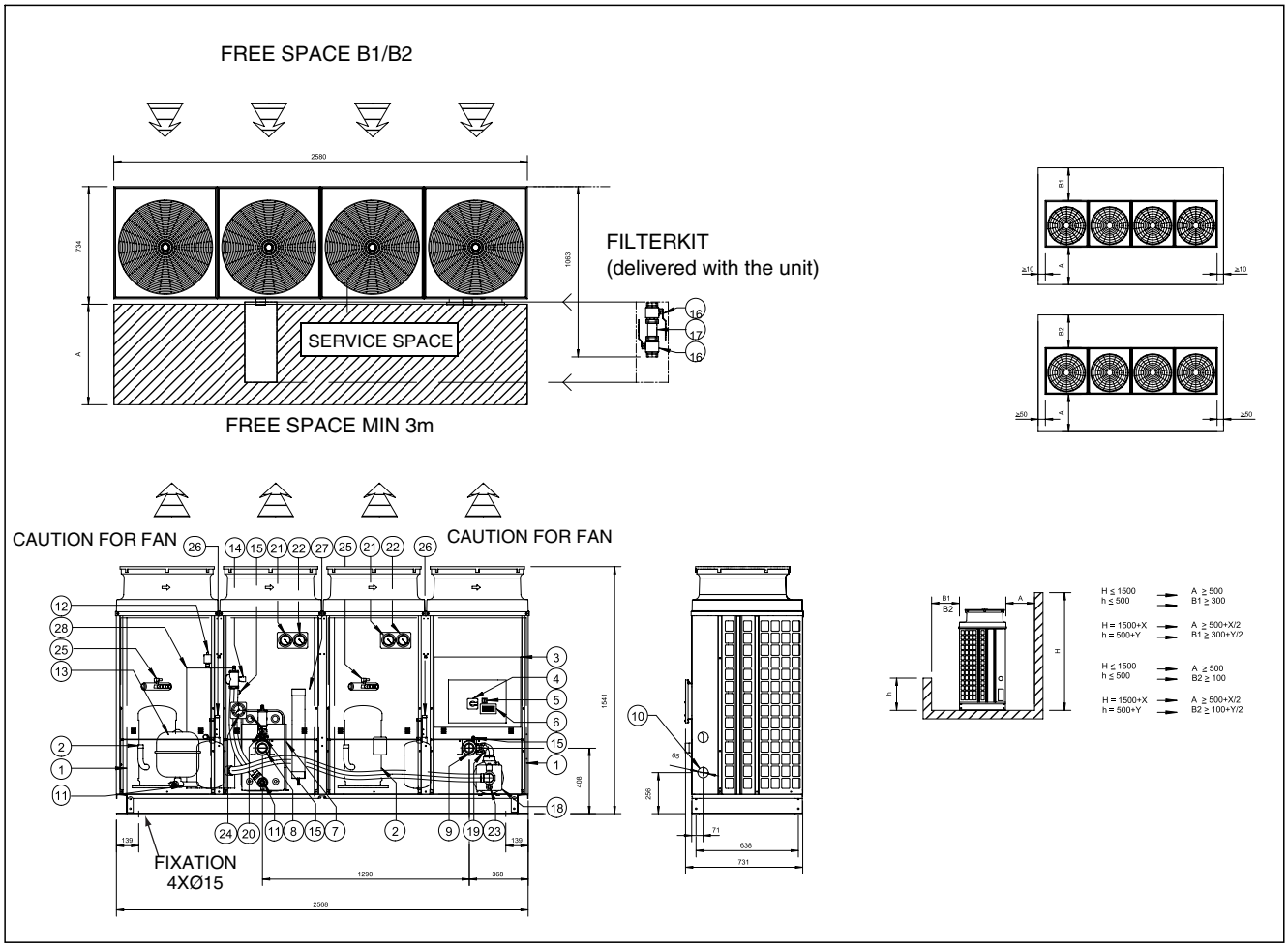
No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Pump switch
6	Digital display controller
7	Water heat exchanger
8	Water IN connection: 2” M BSP
9	Water OUT connection: 2” M BSP
10	Power supply intake
11	Drain
12	Air purge
13	Expansion vessel
14	Safety valve

No.	Component
15	Pressure port
16	Ball valve
17	Water filter
18	Pump
19	Regulation valve
20	Flow switch
21	High pressure gauge (optional)
22	Low pressure gauge (optional)
23	Pump drain
24	Water pressure gauge
25	4-way valve (only on H/P models)
26	Accumulator (only on H/P models)
27	Liquid receiver (only on H/P models)

1.30 Outlook Drawing: EUWAB20-24KAZW1/EUWYB20-24KAZW1

EUWAB20-24KAZW1/EUWYB20-24KAZW1

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



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Components

The table below lists the components.

No.	Component
1	Air heat exchanger
2	Compressor
3	Switch box
4	Main switch
5	Pump switch
6	Digital display controller
7	Water heat exchanger
8	Water IN connection: 2” M BSP
9	Water OUT connection: 2” M BSP
10	Power supply intake
11	Drain
12	Air purge
13	Expansion vessel
14	Safety valve

No.	Component
15	Pressure port
16	Ball valve
17	Water filter
18	Pump
19	Regulation valve
20	Flow switch
21	High pressure gauge (optional)
22	Low pressure gauge (optional)
23	Pump drain
24	Water pressure gauge
25	4-way valve (only on H/P models)
26	Accumulator (only on H/P models)
27	Liquid receiver (only on H/P models)
28	Buffertank

2 Piping Layout

2.1 What Is in This Chapter?

Introduction

This chapter describes the internal refrigeration circuit. The water piping is considered to be a common practice and is, therefore, not described.

Overview

This chapter contains the following topics:

Topic	See page
2.2–Installation outline	1–64
2.3–Functional Diagram Refrigeration Circuit: EUWA*5-24KAZW1	1–65
2.4–Functional Diagram Refrigeration Circuit: EUWY*5-24KAZW1	1–68

1

2.2 Installation outline

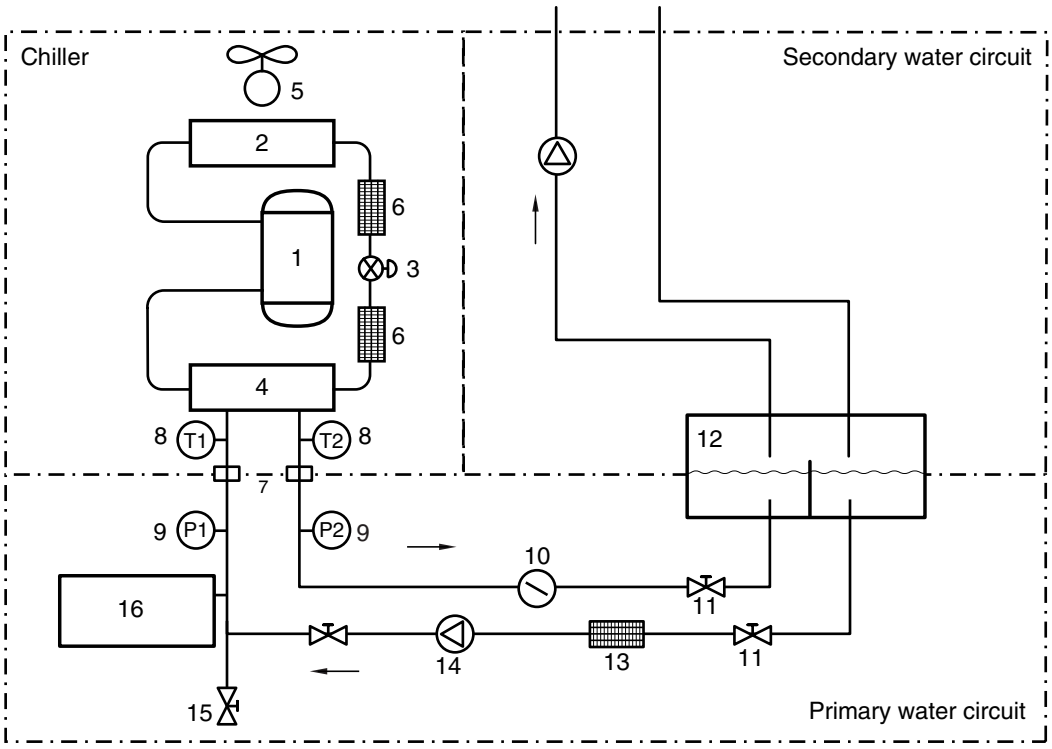
Introduction

The installation outline contains the main parts of a typical installation:

- Chiller
- Primary water circuit
- Secondary water circuit.

Typical installation

The illustration below shows a typical installation. Some of these components may not be present in all the chillers described in this manual.



Components

The table below lists the components.

No.	Chiller
1	Compressor
2	Air-heat exchanger
3	Expansion valve
4	Water-heat exchanger
5	Fan motor
6	Refrigerant filter strainer
7	Water connections
8	Temperature measuring points

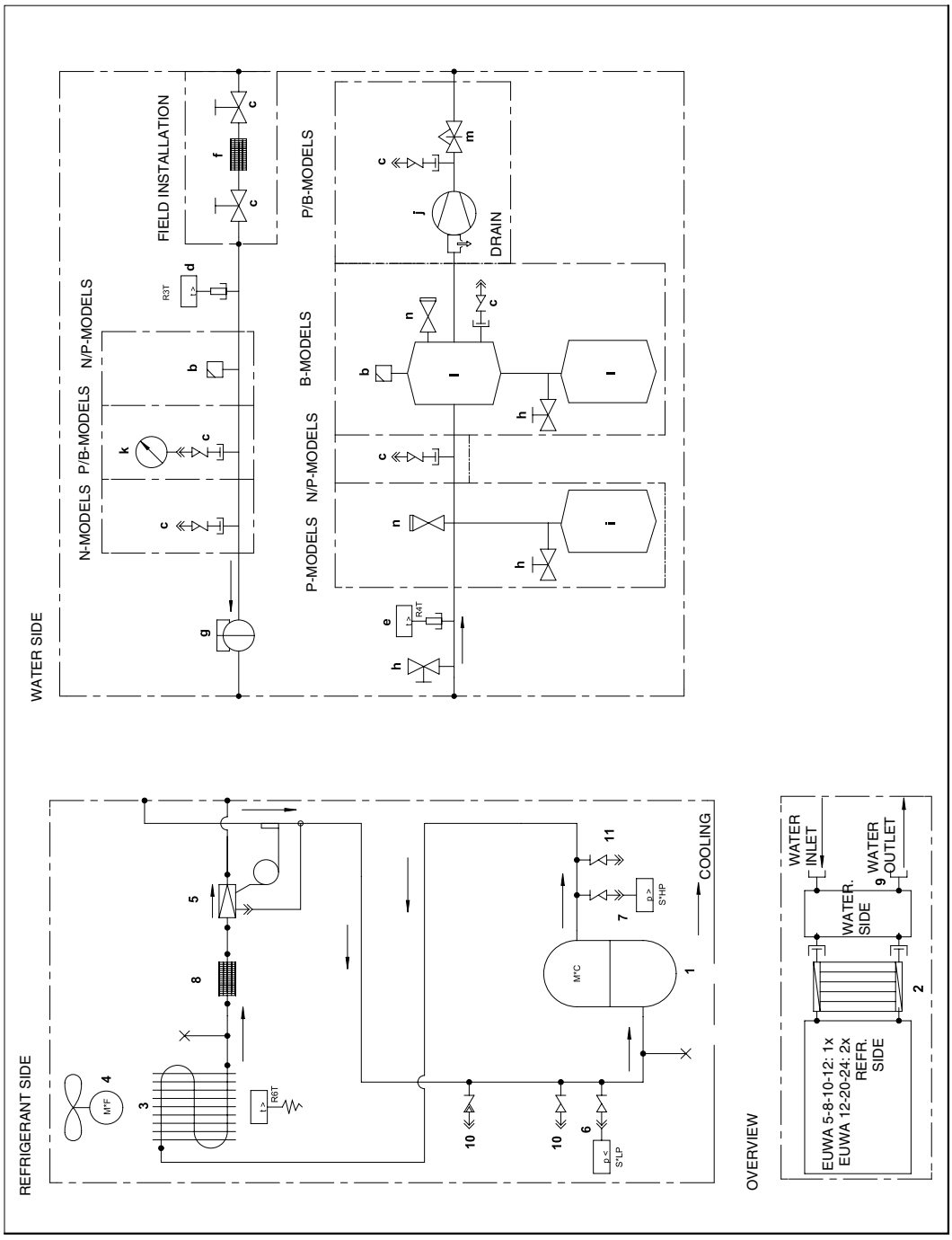
No.	Primary water circuit
9	Pressure measuring points
10	Flow switch
11	Shut-off valves
12	Buffer tank
13	Water filter
14	Water pump
15	Drain valve
16	Expansion tank

Water filter

Make sure a filter is installed in front of the water inlet of the plate-heat exchanger. The plate-heat exchangers are sensitive to dirt and small particles.
The mesh opening of the filter is max. 0.5 mm.

2.3 Functional Diagram Refrigeration Circuit: EUWA*5-24KAZW1

Functional diagram The illustration below shows the functional diagram of the refrigeration circuit of EUWA*5-24KAZW1. It is also applicable for glycol applications.



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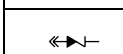
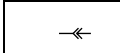
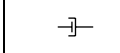
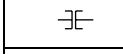
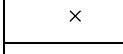
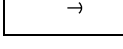
Symbols

The table below describes the symbols.

Symbol	Description
R3T	Inlet water temperature sensor
R4T	Outlet water temperature sensor
R6T	Ambient temperature sensor
S*HP	High-pressure switch
S*LP	Low-pressure switch
M*F	Condensor fan
M*C	Compressor

Symbol	Description
	Check valve
	Flare connection
	Screw connection
	Flange connection
	Pinched pipe
	Spinned pipe

Components refrigeration side

The table below describes the main components of the refrigeration circuit on the refrigeration side.

No.	Component	Function / remark
1	Compressor	A hermetically sealed scroll compressor.
2	Water-heat exchanger (evaporator)	The water-heat exchanger is of the brazed plate-heat exchanger type.
3	Air-heat exchanger (condensor)	The air-heat exchanger is of the cross fin coil type. Hi-X-tubes and PE coated waffle louvre fins are used. The air is discharged upwards.
4	Fan	Direct driven single or two speed motor.
5	Expansion valve	The thermostatic expansion valve is set up to control the superheat between 5°C and 7°C.
6	Low-pressure switch	This switch acts as a circuit safety. ■ Standard setting: OFF = 2 bar ± 0.3 ■ Standard setting: ON = 0.2 bar ± 0.2 ■ Glycol application setting: OFF = 1.5 bar ± 0.3 ■ Glycol application setting: ON = 0.5 bar ± 0.2
7	High-pressure switch	This switch acts as a circuit safety. ■ Standard setting: OFF = 21.6 bar +0/-1 ■ Standard setting: ON = 30.9 bar +0/-1
8	Strainer	This strainer prevents dirt particles from entering the expansion valve.
9	Water in- and outlet connections	The water in- and outlet connections are made of galvanized steel pipe (British Standard Pipe - BSP). The pipes are not insulated. If copper field piping is used for the water circuit, then precaution should be taken to prevent electrolytic corrosion.
10	Low-pressure service port	The low-pressure service port is used to connect a low-pressure gauge.
11	High-pressure service port	The high-pressure service port is used to connect a high-pressure gauge.

Components water side

The table below describes the main components of the refrigeration circuit on the water side.

			No.	Component	Function / remark
EUWAB5-24KAZW1	EUWAP5-24KAZW1	EUWAN5-24KAZW1	a	Shut-off valve	Makes it possible to shut-off a part of the water piping for maintenance (e.g. to change a filter).
			b	Air purge	To purge the water circuit, to prevent air from entering the water circuit.
			c	Service port	The service port is used to connect a pressure gauge.
			d	Water temperature sensor	The water temperature sensors are used to control the thermostat function at the heat exchanger inlet.
			e	Freeze-up sensor	This protection device shuts down the circuit when the temperature of the chilled water becomes too low in order to prevent the water from freezing during operation.
			f	Strainer	This strainer prevents dirt particles from entering the water circuit.
			g	Flow switch	The flow switch is used to check if there is flow.
			h	Drain valve	The drain valve is used to drain water from the circuit.
			i	Expansion vessel	The expansion vessel deals with water expansion, which occurs when the temperature of the water varies.
			j	Pump	The pump circulates the water.
			k	Pressure gauge	Standard is the pressure gauge fitted to the unit.
			n	Safety valve	Maximum 3 bar pressure.
			l	Buffer tank	This buffer tank of 55 l is used to store chilled water to prevent the compressor from switching ON/OFF continuously depending on the load.
			m	Pressure regulation valve	The pressure regulation valve is used to regulate the pressure of the water side.

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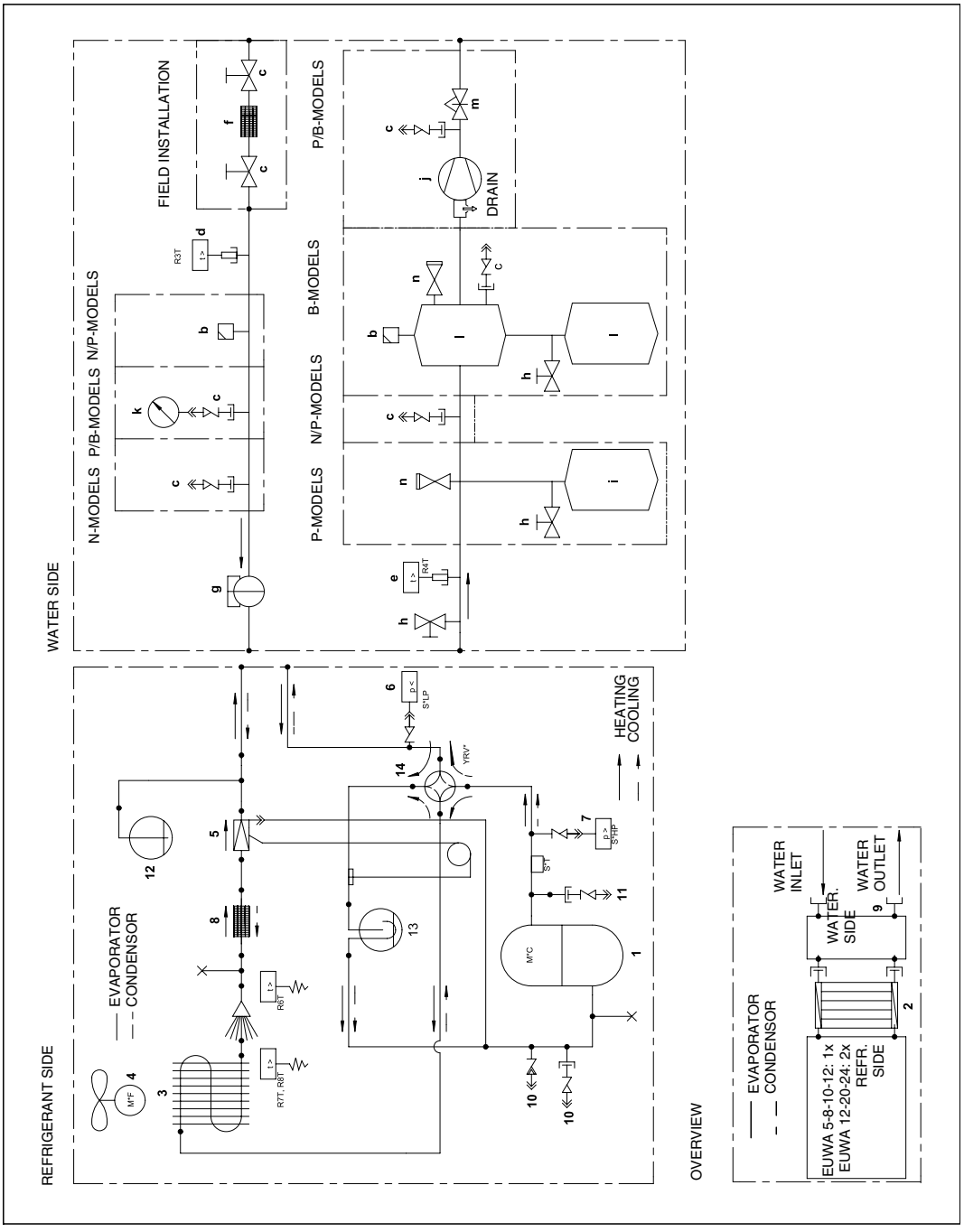
2.4 Functional Diagram Refrigeration Circuit: EUWY*5-24KAZW1

Functional diagram

The illustration below shows the functional diagram of the refrigeration circuit of EUWY*5-24KAZW1. It is also applicable for glycol applications.



Symbols

The table below describes the symbols.

Symbol	Description
R3T	Inlet water temperature sensor
R4T	Outlet water temperature sensor
R6T	Ambient temperature sensor
R7-8T	Coil temperature sensor
S*HP	High-pressure switch
S*LP	Low-pressure switch
S*T	Discharge temperature controller
YRV*	4-way valve

Symbol	Description
M*F	Condensor fan
M*C	Compressor
	Check valve
	Flare connection
	Screw connection
	Flange connection
	Pinched pipe
	Spinned pipe

Components refrigeration side

The table below describes the main components of the refrigeration circuit on the refrigeration side.

No.	Component	Function / remark
1	Compressor	A hermetically sealed scroll compressor.
2	Water-heat exchanger (evaporator)	The water-heat exchanger is of the brazed plate-heat exchanger type.
3	Air-heat exchanger (condensor)	The air-heat exchanger is of the cross fin coil type. Hi-X-tubes and PE coated waffle louvre fins are used. The air is discharged upwards.
4	Fan	Direct driven single or two speed motor.
5	Expansion valve	The thermostatic expansion valve is set up to control the superheat between 5°C and 7°C.
6	Low-pressure switch	This switch acts as a circuit safety. ■ Standard setting: OFF = 2 bar ± 0.3 ■ Standard setting: ON = 0.2 bar ± 0.2 ■ Glycol application setting: OFF = 1.5 bar ± 0.3 ■ Glycol application setting: ON = 0.5 bar ± 0.2
7	High-pressure switch	This switch acts as a circuit safety. ■ Standard setting: OFF = 21.6 bar +0/-1 ■ Standard setting: ON = 30.9 bar +0/-1
8	Strainer Bi-flow	This strainer prevents dirt particles from entering the expansion valve. The type of this strainer is a bi-flow strainer.
9	Water in- and outlet connections	The water in- and outlet connections are made of galvanized steel pipe (British Standard Pipe - BSP). The pipes are not insulated. If copper field piping is used for the water circuit, then precaution should be taken to prevent electrolytic corrosion.
10	Low-pressure service port	The low-pressure service port is used to connect a low-pressure gauge.

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No.	Component	Function / remark
11	High-pressure service port	The high-pressure service port is used to connect a high-pressure gauge.
12	Liquid receiver	The liquid receiver temporarily holds the refrigerant which has been liquified by the condensor before being send to the expansion valve.
13	Accumulator	The accumulator is used to separate the gas from the liquid in order to prevent the compressor from pumping liquid.
14	4-way valve	The 4-way valve is energized during cooling.

Components water side

The table below describes the main components of the refrigeration circuit on the water side.

			No.	Component	Function / remark
EUWYB5-24KAZW1	EUWYP5-24KAZW1	EUWYN5-24KAZW1	a	Shut-off valve	Makes it possible to shut-off a part of the water piping for maintenance (e.g. to change a filter).
			b	Airport	To purge the water circuit, to prevent air from entering the water circuit.
			c	Service port	The service port is used to connect a pressure gauge.
			d	Water temperature sensor	The water temperature sensors are used to control the thermostat function at the heat exchanger inlet.
			e	Freeze-up sensor	This protection device shuts down the circuit when the temperature of the chilled water becomes too low in order to prevent the water from freezing during operation.
			f	Strainer	This strainer prevents dirt particles from entering the water circuit.
			g	Flow switch	The flow switch is used to check if there is flow.
			h	Drain valve	The drain valve is used to drain water from the circuit.
			i	Expansion vessel	The expansion vessel deals with water expansion, which occurs when the temperature of the water varies.
			j	Pump	The pump circulates the water.
			k	Pressure gauge	Standard is the pressure gauge fitted to the unit.
			n	Safety valve	Maximum 3 bar pressure.
			l	Buffer tank	This buffer tank of 55 l is used to store chilled water to prevent the compressor from switching ON/OFF continuously depending on the load.
			m	Pressure regulation valve	The pressure regulation valve is used to regulate the pressure of the water side.

3 Wiring Layout

3.1 What Is in This Chapter?

Introduction

This chapter contains the following information:

- Main functions of the EUWA*5-24KAZW1 and EUWY*5-24KAZW1
- Switch box layout
- Wiring diagram

Overview

This chapter contains the following topics:

Topic	See page
3.2–Main Functions of the EUWA*5-24KAZW1 and EUWY*5-24KAZW1	1–72
3.3–Switch Box Layout: EUWA*5-24KAZW1 and EUWY*5-24KAZW1	1–73
3.3–Switch Box Layout: EUWA*5-24KAZW1 and EUWY*5-24KAZW1	1–73
3.4–PCB Layout of the EUWA*5-24KAZW1 and EUWY*5-24KAZW1	1–75
3.5–Wiring Diagram: EUWA*5-24KAZW1 and EUWY*5-24KAZW1	1–80

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3.2 Main Functions of the EUWA*5-24KAZW1 and EUWY*5-24KAZW1

Main functions

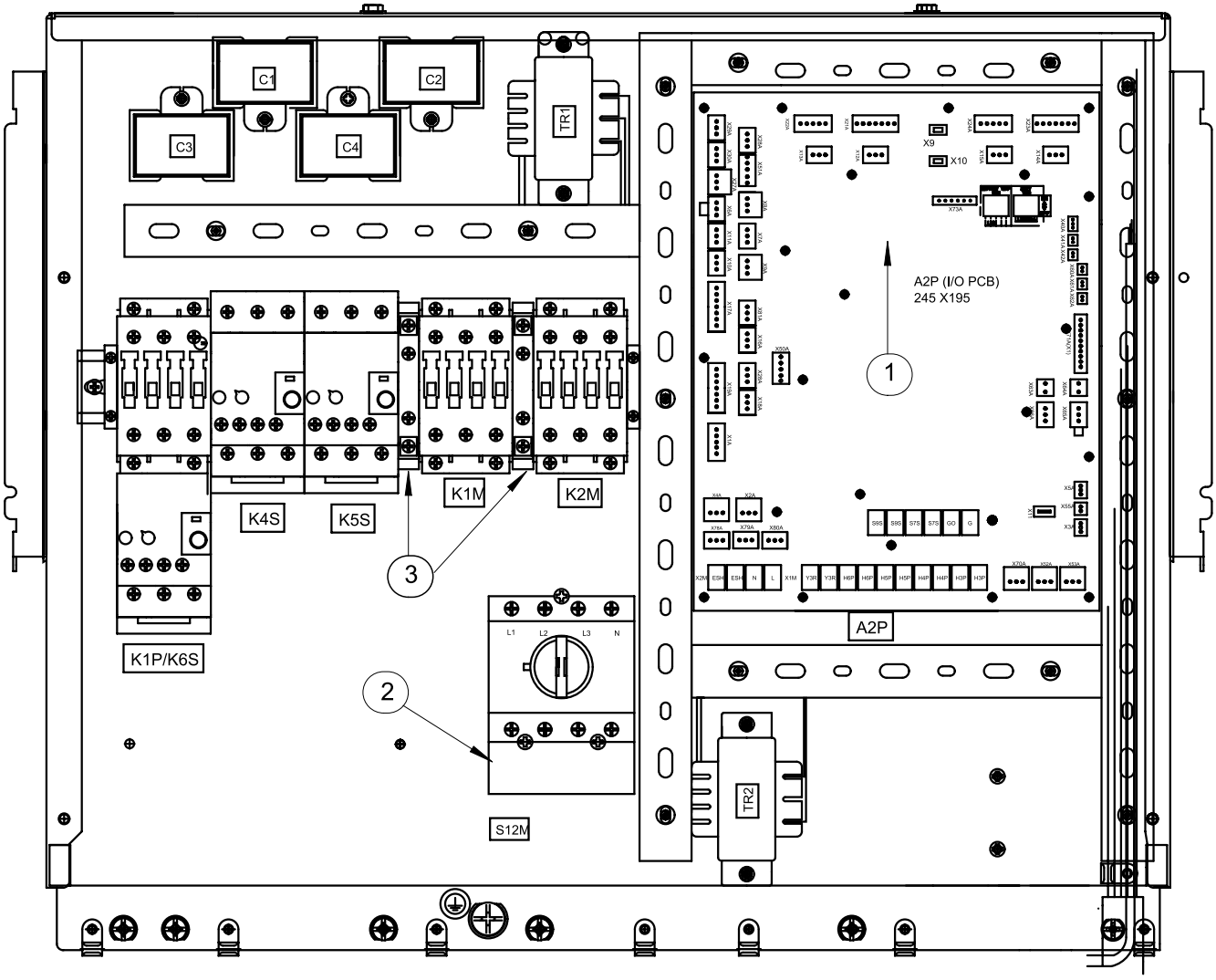
The table below describes the components connected to the µcontroller.

Terminal	Signal	Connection	Wiring diagram symbol			Description
			Connector I/O PCB			
X1	Digital input	ID1-GND	X71A (5-10)	X65A	S10L	Flow switch
		ID2-GND		X3M	S7S	Remote cool/heat
		ID3-GND		X6A/X7A	S1HP/S1HP	High-pressure switch
				X8A/X9A	Q1D/Q2D	Discharge protector
				X10A/X11A	K4S/K55	Thermal overcurrent
		ID4-GND		X63A/X64A	S4LP/S5LP	Low-pressure switch
		ID5-GND		X3M	S9S	Remote ON/OFF
	Analog input	B1-GND	X71A (1-4)	X60A	R3T	Evaporator inlet water t°
		B2-GND		X61A	R4T	Evaporator outlet water t°
		B3-GND		_	_	_
		Y1-GND		_	_	_
X2	Digital output	C1/2-NO1	X50A	X17A	K1M	Compressor on circuit 1
		C1/2-NO2		X19A	K2M	Compressor on circuit 2
		C3/4-NO3	X51A	X29A	K1P	Contact for pump
		C3/4-NO4		X5-X6/ X7-X8	Y1R/Y2R	Reversing valve
		C5-NO5	X70A	X1M (1-2)	H3P	Alarm voltage-free contact

3.3 Switch Box Layout: EUWA*5-24KAZW1 and EUWY*5-24KAZW1

Double circuit layout

The illustration below shows the switch box layout for a double circuit.



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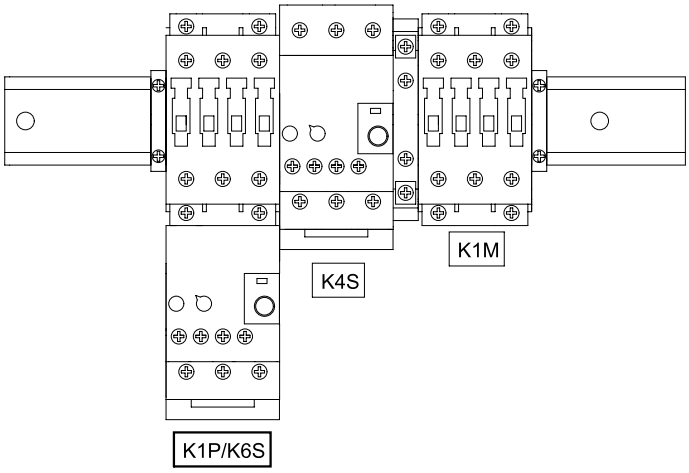
Single circuit layout

The illustration below shows the switch box layout for a single circuit.



Components

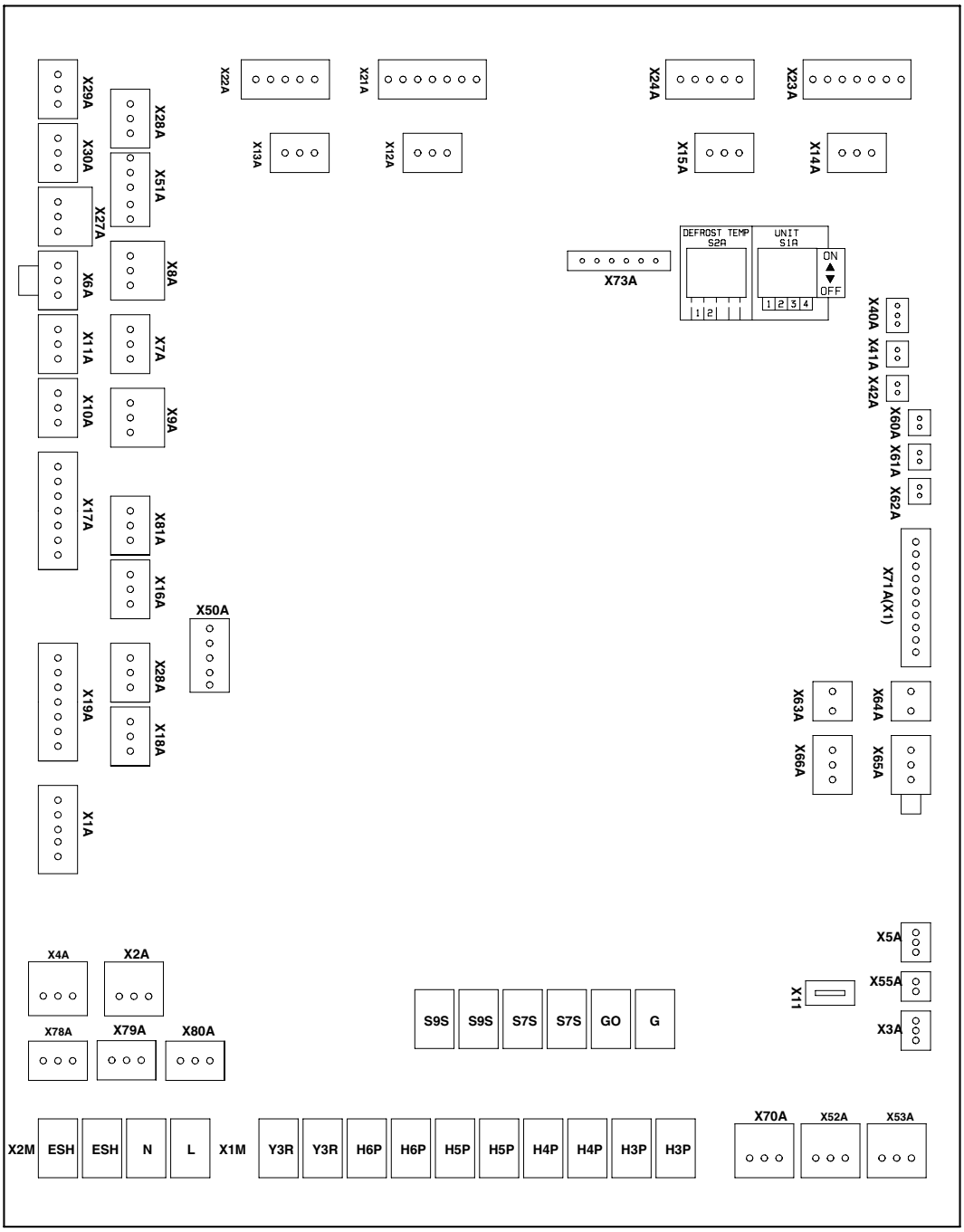
The table below describes the components.

Wiring diagram symbol	Description
C1/C2/C3/C4	AC motor capacitors 12 µF
TR1/TR2	Power supply transformator
K1P	Pump contactor
K6S	Pump
K4S/K5S	Circuit 1/circuit 2
K1M/K2M	Compressor contactor circuit 1/circuit 2
S12M	Main switch
S21P	Pump switch (on front switch box)
1	I/O PCB
2	Main switch (on front switch box)
3	Auxiliary contact for K1M and K2M

3.4 PCB Layout of the EUWA*5-24KAZW1 and EUWY*5-24KAZW1

PCB layout

The illustration below shows the I/O PCB layout of chiller types EUWA*5-24KAZW1 and EUWY*5-24KAZW1.



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Components

The table below describes the components.

Connector	Wiring diagram symbol	Description
X1A	(L1, N, L3)	Power supply L1, N, L3
X2A	TR Pri.	Transformer primary
X3A	TR. Sec	Transformer secondary
X4A	TR Pri.	Transformer primary
X5A	TR. Sec	Transformer secondary
X6A	S1HP	High pressure switch of circuit 1
X7A	S2HP	High pressure switch of circuit 2
X8A	Q1D	Discharge thermal protector of circuit 1
X9A	Q2D	Discharge thermal protector of circuit 2
X10A	K4S	(NC) Overcurrent relay of circuit 1
X11A	K5S	(NC) Overcurrent relay of circuit 2
X12A	Q11F	Thermal protector of fanmotor 1 of circuit 1
X13A	Q12F	Thermal protector of fanmotor 2of circuit 1
X14A	Q21F	Thermal protector of fanmotor 1 of circuit 2
X15A	Q22F	Thermal protector of fanmotor 2 of circuit 2
X16A	Y1S	Liquid solenoid valve
X17A	K1M	Compressor contactor (coil) of circuit 1 NC contact of K1M
X18A	Y2S	Liquid solenoid valve
X19A	K2M	Compressor contactor (coil) of circuit 2 NC contact of K2M
X21A	M11F	Fanmotor 1 of circuit 1
X22A	M12F	Fanmotor 2 of circuit 1
X23A	M21F	Fanmotor 1 of circuit 2
X24A	M22F	Fanmotor 2 of circuit 2
X27A	S21P	Switch for pump: Manual - Auto
X28A	K6S	(NC) Overcurrent relay of pump
X29A	K1P	Pump contactor
X30A	S10L	Flow contactor
X40A	R6T	Ambient temperature sensor
X41A	R7T	Coil temperature sensor for circuit 1
X42A	R8T	Coil temperature sensor for circuit 2
X50A	X2 (C1/2, No1, No2)	To A1P µchiller compact
X51A	X2 (C3/4, No3, No4)	To A1P µchiller compact (pump + reverse valve)

Connector	Wiring diagram symbol	Description
X52A	K1M	NO contact of K1M
X53A	K2M	NO contact of K2M
X55A	(G, GO)	Power supply to µchiller compact
X56A	(N, L3)	Power supply for evaporator heater tape
X60A	R3T	Evaporator inlet water temperature sensor
X61A	R4T	Evaporator outlet water temperature sensor
X62A	R5T	Cond. inlet water temperature sensor
X63A	S4LP	Low pressure switch circuit 1
X64A	S5LP	Low pressure switch circuit 2
X65A	S10L	Flow contact
X66A	X66A	No use (shortcut)
X70A	X2 (C5, No5)	To A1P (C5, No5)
X71A	X1 (B1, 2, 3, Gnd, ID1, ID2, ID3, ID4, ID5, Gnd)	To A1P X1 (B1, B2, B3, Gnd) (ID1, ID2, ID3, ID4, ID5, Gnd)
X73A	X73A SER.	Serial communication
X78A	E3H	Evaporator heater tape
X79A	E4H	Evaporator heater tape
X80A	E6H	Buffer heater
X81A	E1H	Crankcase heater 1
X82A	E2H	Crankcase heater 2
X1M	(H3P, H4P, H5P, H6P, Y3R)	Connection for field wiring
X2M	(L, N, E5H)	Field connection for option OP10 Evap. heater tape
X3M	(G, Go (Option)) S9S S7S DONT CONNECT VOLTAGE	Field connection for option kit, EKAC10A (A3P) and fieldwiring
X5	Y1R	Reverse valve circuit 1
X6	Y1R	Reverse valve circuit 1
X7	Y2R	Reverse valve circuit 2
X8	Y2R	Reverse valve circuit 2
X9	X9	To fan contactor circuit 1
X10	X10	To fan contactor circuit 2
X11	PE (GRN/YLW)	To earth

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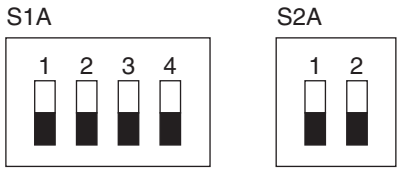
Dipswitches and pushbuttons

The illustration below shows the dipswitches and pushbuttons on the PCB.



Function

The table below describes the function of the dipswitches and pushbuttons on the PCB.

S1A	Dipswitch 1	S2A	Dipswitch 2
1	0 = 1 circ. 1 = 2 circ.	1	Defrost setting (only for EUWY*5-24KAZW1) 0 = Start condition 1 & fan defrost 1 (5HP, 8HP, 16HP) 1 = Start condition 2A/B & fan defrost 2 (10HP, 12HP, 20HP, 24HP)
2 3 4	010 = EUWA 100 = EUWY (without defrost compressor stop) 101 = EUWY (with defrost compressor stop)	2	Fan setting 0 = Fan setting 1 (5HP, 8HP, 16HP) 1 = Fan setting 2 (10HP, 12HP, 20HP, 24HP)

LED's

The table below describes the LEDs.

Symbol	LED	Meaning
HAP	Light emitting diode (Service monitor - Green)	Blinking = CPU OK Not blinking = CPU NOK
H1P	Light emitting diode (Service monitor - RED)	-
H2P	Light emitting diode (Service monitor - RED)	-

Status H1P and H2P

The table below describes the status of H1P and H2P.

Meaning	H1P	H2P
No error	OFF	OFF
Safety device	ON	OFF
Reverse phase	OFF	ON
Sensor broken	ON	ON

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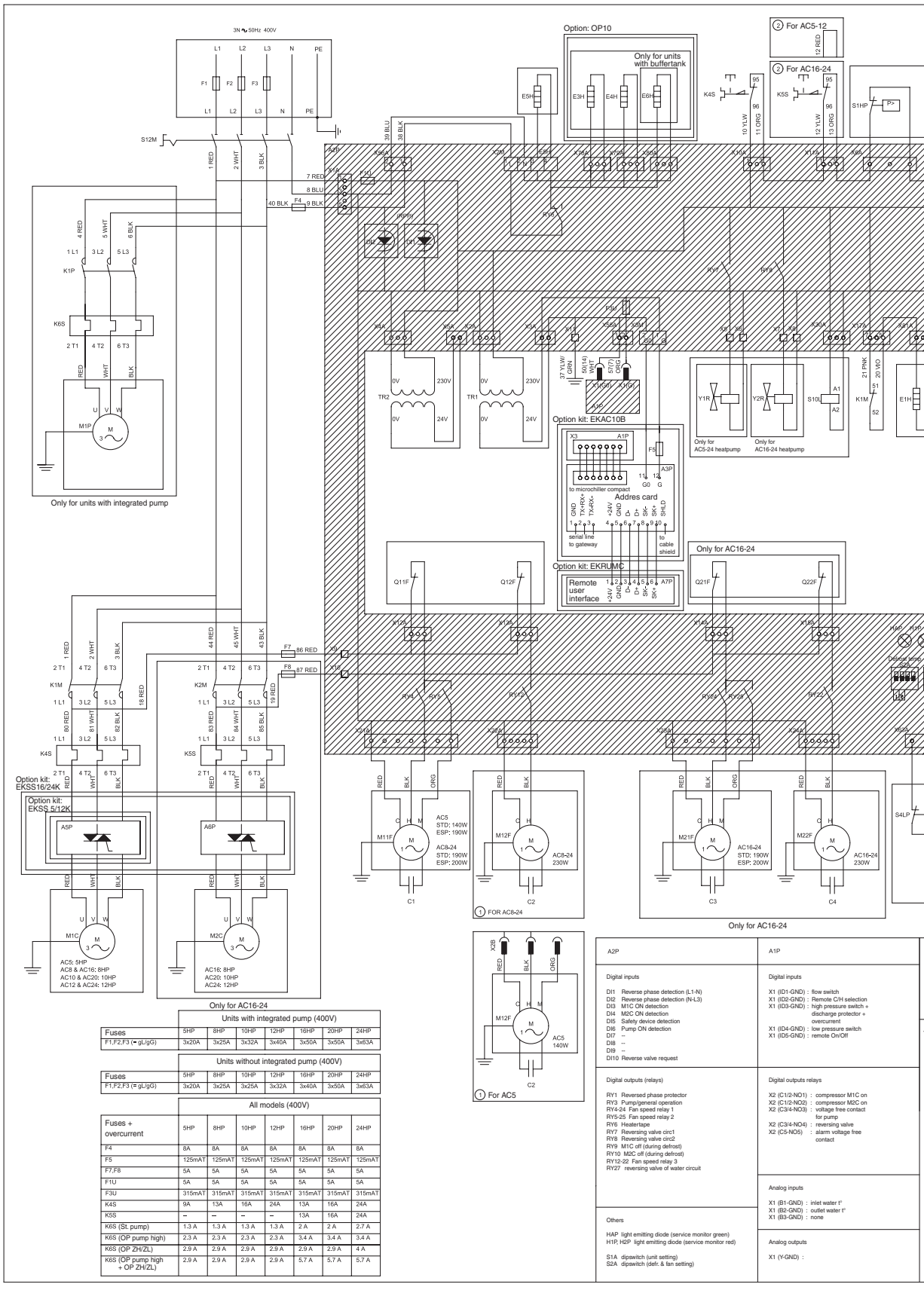
3.5 Wiring Diagram: EUWA*5-24KAZW1 and EUWY*5-24KAZW1

Diagram

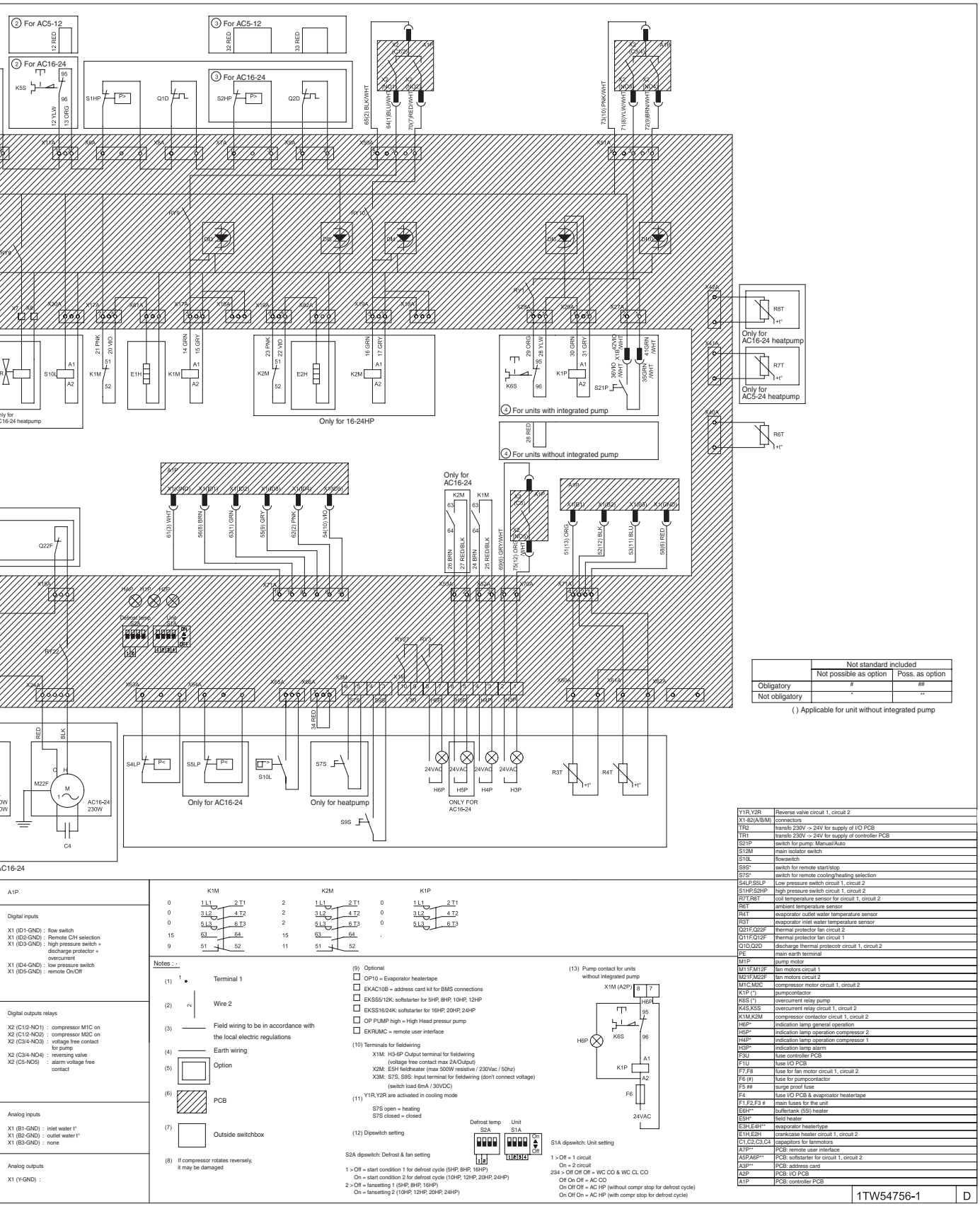


Only for AC16-24

	Units with integrated pump (400V)						
Fuses	5HP	8HP	10HP	12HP	16HP	20HP	24HP
F1,F2,F3 (= gL/gG)	3x20A	3x25A	3x32A	3x40A	3x50A	3x50A	3x63A

	Units without integrated pump (400V)						
Fuses	5HP	8HP	10HP	12HP	16HP	20HP	24HP
F1,F2,F3 (= gL/gG)	3x20A	3x25A	3x25A	3x32A	3x40A	3x50A	3x63A

	All models (400V)						
Fuses + overcurrent	5HP	8HP	10HP	12HP	16HP	20HP	24HP
F4	8A	8A	8A	8A	8A	8A	8A
F5	125mAT	125mAT	125mAT	125mAT	125mAT	125mAT	125mAT
F7,F8	5A	5A	5A	5A	5A	5A	5A
F1U	5A	5A	5A	5A	5A	5A	5A
F3U	315mAT	315mAT	315mAT	315mAT	315mAT	315mAT	315mAT
K4S	9A	13A	16A	24A	13A	16A	24A
K5S	--	--	--	--	13A	16A	24A
K6S (St. pump)	1.3 A	1.3 A	1.3 A	1.3 A	2 A	2 A	2.7 A
K6S (OP pump high)	2.3 A	2.3 A	2.3 A	2.3 A	3.4 A	3.4 A	3.4 A
K6S (OP ZH/ZL)	2.9 A	2.9 A	2.9 A	2.9 A	2.9 A	2.9 A	4 A
K6S (OP pump high + OP ZH/ZL)	2.9 A	2.9 A	2.9 A	2.9 A	5.7 A	5.7 A	5.7 A



	Not standard included	
	Not possible as option	Poss. as option
Obligatory	#	##
Not obligatory	*	**

( ) Applicable for unit without integrated pump

Y1R,Y2R	Reverse valve circuit 1, circuit 2
X1-82(A/B/M)	connectors
TR2	transfo 230V -> 24V for supply of I/O PCB
TR1	transfo 230V -> 24V for supply of controller PCB
S21P	switch for pump: Manual/Auto
S12M	main isolator switch
S10L	flowswitch
S9S*	switch for remote start/stop
S7S*	switch for remote cooling/heating selection
S4LP,S5LP	Low pressure switch circuit 1, circuit 2
S1HP,S2HP	high pressure switch circuit 1, circuit 2
R7T,R8T	coil temperature sensor for circuit 1, circuit 2
R6T	ambient temperature sensor
R4T	evaporator outlet water temperature sensor
R3T	evaporator inlet water temperature sensor
Q21F,Q22F	thermal protector fan circuit 2
Q11F,Q12F	thermal protector fan circuit 1
Q1D,Q2D	discharge thermal protecotr circuit 1, circuit 2
PE	main earth terminal
M1P	pump motor
M11F,M12F	fan motors circuit 1
M21F,M22F	fan motors circuit 2
M1C,M2C	compressor motor circuit 1, circuit 2
K1P (*)	pumpcontactor
K6S (*)	overcurrent relay pump
K4S,K5S	overcurrent relay circuit 1, circuit 2
K1M,K2M	compressor contactor circuit 1, circuit 2
H6P*	indication lamp general operation
H5P*	indication lamp operation compressor 2
H4P*	indication lamp operation compressor 1
H3P*	indication lamp alarm
F3U	fuse controller PCB
F1U	fuse I/O PCB
F7,F8	fuse for fan motor circuit 1, circuit 2
F6 (#)	fuse for pumpcontactor
F5 ##	surge proof fuse
F4	fuse I/O PCB & evaporator heatertape
F1,F2,F3 #	main fuses for the unit
E6H**	buffertank (55l) heater
E5H*	field heater
E3H,E4H**	evaporator heatertype
E1H,E2H	crankcase heater circuit 1, circuit 2
C1,C2,C3,C4	capapitors for fanmotors
A7P**	PCB: remote user interface
A5P,A6P**	PCB: softstarter for circuit 1, circuit 2
A3P**	PCB: address card
A2P	PCB: I/O PCB
A1P	PCB: controller PCB

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